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ABSTRACT

Thirty-nine individuals from 20 countries in the Economic Commission for Asia and the Far East (ECAFE) took part in a twelve-day seminar. Ten papers dealing with the ways in which demography factors relate to manpower were presented. The seminar's three objectives were to provide an opportunity for exchange of information, knowledge, and experience among personnel whose activities involve them in the interrelations between population and manpower problems; to examine the impact of population growth on manpower, labor force, and employment needs, with special reference to countries in the region; and to give expert consideration to techniques of assessing, analyzing, and interpreting data on the interrelations between population and manpower problems in the context of development planning. It was condluded that population and manpower policies whould be comprehensive and encompass specific aspects of the region. Allowances should be made for flexibility and possible inconsistencies; and programs should be the subject of continuing analysis, assessment, and evaluation. (AG)

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ASIAN POPULATION STUDIES SERIES

No. 7

INTERRELATION BETWEEN POPULATION AND MANPOWER PROBLEMS

Report and Selected Papers of a Regional Seminar

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ASIAN POPULATION STUDIES SERIES

No. 7

INTERRELATION BETWEEN POPULATION AND MANPOWER PROBLEMS:

A JOINT ECAFE/ILO REGIONAL SEMINAR

Report and Selected Papers

(Held at Bangkok, Thailand, 18 - 30 January 1971)

ECONOMIC COMMISSION FOR ASIA AND THE FAR EAST

Bangkok, Thailand

UNITED NATIONS

E/CN.11/1015

TABLE OF CONTENTS

Part I - Report of the Seminar

			Page
Chapter	I.	Introduction	1
	II.	Overview of the problems and policy issues	2
	III.	Policy measures affecting population	4
	IV.	Demographic factors in manpower and employment problems	5
	V.	Population and manpower projections	8
	VI.	Research and data needs	9
	VII.	Conclusions and recommendations	10
Annexes	I.	List of participants	12
	II.	List of documents	16
	III.	Detailed recommendations on research and data collection	18
	IV.	Countries in the ECAFE region, as of 1970	23

Part II - Selected Papers

Population and manpower policies—Dimensions and approaches
by I.B. Taeuber 27

Influence of changes in fertility, mortality and migration on age composition and manpower
by Ghazi M. Farooq 36

Trends in labour force participation by age and sex in relation to education and skill
by Pravin M. Visaria 40

Direct influence of fertility, mortality and migration on labour force participation rates
by J.N. Sinha 55

Population growth and changing structure of economic activity
by John D. Durand 59

Manpower demography of countries in Asia and the Far East
by John D. Durand 62

Some problems in collecting manpower statistics
by Y. Morita and M. Seki 93

The relationship between population changes and labour force changes: Implications for manpower projections
by James N. Ypsilantis 98

Interrelationship between population and manpower problems in the context of socio-economic development of the ECAFE region
by S.P. Agarwal 111

PART I

REPORT OF THE SEMINAR

Part I

REPORT OF THE SEMINAR

I. Introduction

1. The Regional Seminar on Interrelation between Population and Manpower Problems in the ECAFE region was held in Bangkok, Thailand, from 18 to 30 January 1971. It was organized jointly by the United Nations Economic Commission for Asia and the Far East (ECAFE) and the International Labour Office (ILO), as a part of the programmes of work pursuant to recommendations of the Asian Population Conference of 1963 and to the Commission's resolutions 54 (XX) of April 1964 and 74 (XXIII) of April 1967.

2. The Asian Population Conference recognized the importance of including the development of manpower resources and employment opportunities as an essential part of efforts to cope with the population problems facing countries in the region. Among the recommendations of the Conference, particular mention may be made of the following: that a national population policy should take account of manpower utilization and its development and be formulated in the specific long-range perspective of developments in manpower; that promotion of fuller utilization of human resources should be considered important as well as urgent; and that measures to moderate population growth should be made an integral part of national development plans. In this connexion, the Conference recommended that ECAFE, in co-operation with the appropriate international agencies, should "organize a programme of workshops for utilization of human resources, parallel to its programmes in the demographic field".[1] The Conference registered concern over variation in the concepts and inadequacy of the definitions of the terms "labour force", "employment", "unemployment" and "underemployment". It also recognized the need for research on relations between human resources and the processes of economic growth and recommended the development of basic data necessary for demographic and manpower research.

3. The Commission, in resolution 54 (XX), reiterated the need for adequate concepts and definitions of "labour force", "employment", and "underemployment" and recommended that the Conference of Asian Statisticians give urgent attention to this problem. Recommendations to analyse the effect of population pressure as related to the development goals of countries in the region were made in resolution 74 (XXIII). This seminar, endorsed by the Commission in its twenty-fourth session at Canberra in 1968, was originally planned for 1968/69 but had to be postponed because of lack of resources. Finances for the seminar have been provided by the United Nations Fund for Population Activities.

4. The Seminar had three objectives: (a) to provide a forum for the exchange of information, knowledge and experience among policy-makers, planners, experts and technicians whose activities involve them in the interrelations between population and manpower problems; (b) to examine the impact of population growth on manpower, labour force and employment needs, with special reference to countries in the region; and (c) to give expert consideration to techniques of assessing, analysing and interpreting data on the interrelations between population and manpower problems in the context of development planning. It was with a view to ensuring an integrated approach to these problems that the seminar was organized as a collaborative activity of ECAFE and the ILO.

5. Thirty-nine participants from twenty countries in the ECAFE region took part in the seminar. Ten experts individually invited by ECAFE and the ILO led discussions and contributed papers. Observers attended on behalf of the Food and Agriculture Organization of the United Nations (FAO), the United Nations Educational, Scientific and Cultural Organization (UNESCO), the World Health Organization (WHO), the United Nations Children's Fund (UNICEF), the Population Council of New York, the Government of Thailand and the Government of the United States of America. The list of participants is given in annex I.

6. The seminar considered ten working papers and two background papers prepared by the invited experts and the ECAFE and ILO secretariats. In addition, the participants from each country were invited to present relevant papers. All papers were recognized as expressing the views of the authors and not of the organizations or Governments which they represented. A list of the documents is given in annex II.

7. The working languages of the seminar were English and French.

8. H.E. Lt. Gen. Sawaeng Senanarong, Minister in the Office of the Prime Minister, Government of Thailand, made an inaugural statement and welcomed the participants from other countries on behalf of the Government of Thailand. After welcoming the participants on behalf of ECAFE, U Nyun, Executive Secretary, noted some highlights of the challenging, intertwined problems of population and manpower which the seminar was to discuss and invited the seminar's advice on the strategy for ECAFE's efforts to assist the countries in the region in achieving their development goals during the Second Development Decade. Mr. Miguel Rodriguez-Macias, Deputy Director of the ILO Regional Office for Asia, also welcomed the participants and expressed concern over the excessive growth of population and its impact on national and regional development efforts.

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1 Report of the Asian Population Conference and Selected Papers (United Nations publication, Sales No. 65.11.F.11), chapter VII.

9. The seminar unanimously adopted the following agenda:

1. Election of officers.
2. Adoption of the agenda.
3. The problem as viewed in the broader context of development planning.
4. Population and manpower policies.
5. Influence of policy measures on mortality, fertility, migration and population growth.
6. Influence of changes in mortality, fertility and migration on age composition and manpower.
7. Trends in labour force participation by age and sex in relation to education and skill.
8. Direct influence of changes in mortality, fertility and migration on labour force participation.
9. Population growth and structural changes in labour force by industry and occupation.
10. Relationship between population projections and manpower projections.
11. Sources, availability and improvement of data needed for demographic analysis of manpower including problems of definition of concepts and classification.
12. Demographic measurement and research needed for manpower policy and planning.
13. Any other items.
14. Adoption of the report.
15. Closing of the seminar.

10. The following officers were elected unanimously: Chairman: Mr. Prom Panitchpakdi (Thailand); First Vice-Chairman: Mr. Patricia Alailima (Western Samoa); Second Vice-Chairman: Mr. Fereydoun Nasseri (Iran); Rapporteur: Mr. David C.E. Chew (Singapore). Assistance was given by members of the ECAFE Population Division under the direction of Mr. Carl M. Frisén, Chief of the Division, and Mr. Sultan S. Hashmi, Chief of the General Demography Section, and by Mr. S.K. Jain, Regional Director of the International Labour Office, Mr. P.C. Mathew, Mr. V.R.K. Tilak and other members of the ILO secretariat in Bangkok. Professor John D. Durand of the Population Studies Centre, University of Pennsylvania, served as consultant for ECAFE, and Mr. S.P. Agarwal of the Institute of Applied Manpower Research, New Delhi, as consultant for ILO.

11. The report of the seminar was unanimously adopted at the closing meeting on 30 January 1971.

II. Overview of the Problems and Policy Issues

12. As estimated by the United Nations Population Division, there were about 2,000 million inhabitants in the countries of the ECAFE region in 1970.[2] According to medium variant projections, that total would increase to about 2,800 million by 1985 and possibly to 3,700 million by the end of the century. The increase in the population of working age (15-64) could imply the demand for 1,000 million more jobs by the year 2000, taking into account the need for a substantial reduction in current levels of unemployment and underemployment and the probable increase in female participation in the labour force.

13. It was apparent from statements of the participants in the seminar that a wide variety of demographic, social and economic conditions existed among these countries. They differed in population dynamics, structure and characteristics; in social structure and characteristics; in resources and degree and kind of economic development; and in labour force structure, levels of employment, unemployment and underemployment, and other characteristics related to economic activity. Those diversities precluded a simple definition of the issues and problems of population and manpower policy for the region as a whole. However, in the general pattern of conditions outlined by the participants the seriousness of the problems of population and manpower stood out boldly for most countries, and their interrelation was evident.

14. The most severe problems of population and manpower in the ECAFE region were concentrated in south Asia. Under an assumption of declining fertility, slow at the current stage, the 1970 estimated population of 1,000 million was projected to about 1,600 million for 1985. Persons who would augment the labour force and the female population of child-bearing age in the following 15 years had already been born under the prevailing high-fertility norm of the previous 15 years. Both the number of men in the working ages, 15-64 years, and of women in the reproductive ages, 15-49 years, would increase by over 50 per cent between 1970 and 1985. Unless fertility declined swiftly over the succeeding 15 years, the total population in the year 2000 would be half as great again as in 1985, and more than double that in 1970.[3]

15. In manpower dynamics, the key problem was the provision of adequate and productive employment for a rapidly increasing population. In population dynamics, a problem of the greatest significance concerned achievement of reduction in rates of population growth through rapid fertility decline. The effects of that problem were

2 The countries of the ECAFE region (as of 1970) annex IV. The People's Republic of China, the Democratic People's Republic of Korea and the Democratic Republic of Viet-Nam, were included as part of the geographic region in references to the total population of the region and subregion.

3 Population estimates and medium variant projections as prepared by the United Nations Population Division.

felt in many ways. Relating population increase to pressure upon food supply had been a means of illustrating one aspect of the population problem, and might have lost some of its impact because of the recent occurrence of the "green revolution". Even if the "green revolution" should provide an adequate supply of food for the world, about which many doubts were being expressed, the root of the problem would not have been reached. The real problem for the ECAFE region had been stated to be: "the excessive rate of growth which inpedes progress and modernization",[4] affecting the family as well as the State.

16. It was in the poorest stratum of society that families were largest. Thus, the burden of dependency fell most heavily on a sector which had relatively low productivity, with the prospect that achievement of minimum standards of living would be further retarded.

17. In most of the Asian ECAFE countries birth rates had remained high while death rates, under the influence of imported technologies, had declined sharply. That was in contrast with the historical experience of the developed countries, where fertility had never been so high and mortality had declined slowly. Urbanization had been closely linked with industrialization and had been a factor in fertility reduction for those countries, but replication of that historic pattern was not currently found in Asia. There, industrialization proceeded much more slowly and did not influence urbanization to so great an extent, and indications were that there was little difference between rural and urban fertility levels. Also, unlike the conditions that had existed at the beginning of industrialization in the developed countries, there were no sparsely populated lands to be settled by the residents of a country or to which international migrants could move, thus relieving population pressures.

18. Population distribution presented another aspect of the problem related to population dynamics. Redistribution through migration might contribute to a balancing of population and manpower growth with resources and opportunities. However, migration resulting from the pressures of over-abundant rural labour most commonly added to an already excess labour supply in already crowded cities, increasing the strain on social costs. In those instances, manpower problems could not be solved by population redistribution alone.

19. In 1970, about 75 per cent of the ECAFE Asian population had been estimated to be living in rural areas. Recent trends suggested that that proportion would be reduced to about 71 per cent in 1980, but that meant an absolute increase of 286 million in the rural population.[5] The labour force of the countries of southeast and middle south Asia, about 67 per cent agricultural in 1970, was expected to be only about 62 per cent agricultural in 1980, but that represented an absolute increase of 36 million in the ten-year period.[6] Thus, the assessment of the population and the manpower future of the less developed Asian countries was focused on the rural and agricultural sectors. Industrialization was taking place in Asian agriculture, with a consequent consolidation of holdings and more efficient operations, but also accompanied by such effects as displacement of labourers, tenants and small owners in some areas.

20. As mechanization and the consolidation of holdings proceeded, substantial alleviation of the problem of food supply might aggravate problems of employment in both rural and urban areas. The integration of major sectors of the rural people into the monetary economy, increasing income in agriculture for some and widening differentials in the incomes of various socio-economic groups and regional populations, might also be among the results of those developments. That manpower dynamics, population dynamics and economic and social development were inextricably intertwined was indisputable; no one of the problems generated was soluble in isolation. The extent of their ramifications was indicated in an FAO report.

> "The problem of employment looms as far more intractable than that of food supply. With it can come not only human misery but social unrest and political instability. In fact it may be that the greatest threat to the technological revolution which could solve the food problem—at least for the foreseeable future—lies in the social disorganization which could result from the ever-increasing millions dependent on a living from the agricultural economy".[7]

21. A planning strategy which took account of the interrelationships between output, employment, labour force, education and population growth and made *employment generation* a primary goal of socio-economic development rather than *output* was considered to be particularly applicable to problems of the Asian countries of the ECAFE region.[8]

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4 Mathew, P.C., "The problem as viewed in the broader context of development economics" (POP/IPMP/DL/1), January 1971, (mimeo).

5 Eastern Regional Organization for Public Administration (EROPA), Conference on the Administrative Implications of Rapid Population Growth in Asia, Manila, 8-14 May 1971, "Current population levels and prospective growth trends in the Asian part of the ECAFE region", (mimeo).

6 Taeuber, I.B., "Population and manpower policies: dimensions and approaches" (POP/IPMP/DL/2). See part II of this report.

7 Food and Agriculture Organization of the United Nations, *Provisional Indicative World Plan for Agricultural Development*, Rome, 1970, vol.1, p. 23.

8 Agarwal, S.P., "Interrelationship between population and manpower problems in the context of socio-economic development in the ECAFE region" (POP/IPMP/6), January 1971, (mimeo), p. 30. Support for this view is found in the following statement made by David A. Morse in his article "The world employment programme" in *International Labour Review*, June 1968: "Even if it means slower economic growth, employment-oriented development is to be preferred on social grounds so long as it does not result in actual economic stagnation".

22. With respect to policy as it affected education and manpower problems, a pattern of development in which educational expansion had been largely modelled on the experience of developed countries, but which had lagged in the creation of suitable employment opportunities for the educated, had fallen short of meeting the needs of the developing countries of the ECAFE region. In many countries, there had been close relations between economic development and increases in the education and skills of the labour force and the general population, but imbalance existed between the increasing numbers of educated youth and the absorptive capacity of the economy. Currently, and for the short run, investments in education seemed to be associated with the generation of attitudes that retarded efficient manpower utilization and effective employment.[9]

23. Considering only population aspects, education appeared to be the major correlate of transformation of the family, the relations between the generations, the role of women, and the limitation of family size. The association of educational level with declining fertility might vary among countries in the region. Policy issues would remain clouded until there were incisive explorations of those interrelations within the countries.[10]

24. The roles of women and their contributions to economic activities differed widely among and within the countries of the region. The responses of societies were related to traditional patterns of women's roles in rural and urban sectors, the types and localizations of employment opportunities and the strategies and plans of economic development with reference to the utilization of women. The policy issues and plans in the individual countries were related to their cultural values, social patterns, and development ideals. However, there seemed to be inconsistencies in the policy issues as assessed from the standpoints of manpower utilization and population dynamics. In the population dynamics of the traditional agricultural areas, there were few consistent relations between the economic activities and the fertility of women. In the process of industrialization and urbanization, relations between economic activity and fertility were limited if that activity was confined to work within the home, or domestic service. There were close interrelations between labour force participation in the modern sector, educational level, age at marriage, and the fertility of married couples. The directions of the causal relations were unclear. From the standpoint of population growth, therefore, policies to stimulate the education and the labour force participation of women would seem desirable, if not essential.

25. The issues for policy relating to women's employment were quite different if assessed from the standpoint of manpower. In a labour-scarcity economy, the employment of women might contribute an essential labour supply, raise family incomes, contribute to educational and other opportunities for children, and promote social development in general. Different issues for policy arose in countries where the rapid growth of population and manpower created major difficulties in employment and jeopardized the welfare of families and communities, and the schooling of children.

26. The integration of manpower and population policies was basic. For instance, swiftly declining birth rates alone would not ensure the solution of manpower difficulties. While labour-intensive developments in rural areas might be adopted on the basis of manpower considerations, such developments might preserve traditionally high fertility.

27. While investments in health and nutrition contributed to vitality, productivity and geographic mobility, and lessened welfare burdens, they also reduced mortality and increased population growth. However, maternal and child health services might be essential carriers for the diffusion of effective birth control practices and, hence, reduced rates of population growth. There were even deeper questions concerning mortality. Morbidity, mortality and their interrelations with employment, income and social structure should be central questions for analysis and evaluation of population and manpower policies and programmes.[11]

28. Postponement of policy decisions to influence manpower and population dynamics was hazardous. The requisite statistical data were limited, concepts were vague and theories fragmentary. There could be no abdication of research and development, but action-oriented policies could not be postponed until knowledge was broader and theories more sophisticated.

III. Policy Measures Affecting Population

29. Consideration by the seminar of the impact on mortality, fertility and migration of policy measures directed to economic and social development covered a broad range of topics. Among the kinds of measures noted were those related to health improvement, educational development, agricultural development and food supply, industrial development, tax and monetary policies, population settlement, migration and transportation, social legislation, family planning, status and employment of women, and general levels of living.[12]

30. Measures directly affecting mortality included those concerned with public health facilities, means of controlling major epidemic diseases and improvement of sanitary conditions. Policies related to other matters of public interest might operate indirectly to influence

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9 Agarwal, S.P., *op. cit.*, pp. 28, 29.

10 A comparative study of selected countries of the region, "Interrelationships between levels of literacy, education and skills and fertility trends", will be commenced in 1972 by the Population Division of ECAFE.

11 A comparative study of selected countries of the region, "Mortality trends and the preparation of life tables", is being prepared by the Population Division of ECAFE.

12 ECAFE, Population Division, "Influence of policy measures on mortality, fertility and migration" (POP/IPMP/DL/3), January 1971 (mimeo).

mortality trends. Investment in education, while not so obviously connected with mortality, made a significant contribution by increasing the awareness of hazards to health, of medical means of combating disease and of the value of personal hygiene. Increased knowledge of nutrition brought awareness of better and more abundant food supply, which in turn resulted from government-sponsored agricultural development. Better transportation facilities played an important part in food distribution, thus lessening the probability of famine.

31. Increased income and supply of commodities followed investment in the industrial sector and could have a beneficial effect on health. However, environmental hazards resulting from industrial pollutants were contributing to disease and death and required government action. Urbanization as a response to industrialization, and the many unwholesome conditions resulting from urban congestion might also be mentioned in that connexion.

32. Regulation of age at marriage, generally being raised for women, operated to decrease maternal mortality. Government family planning programmes had the same effect through inducing wider birth intervals, also a contributory factor in the decrease of infant mortality. The incidence of illegal abortion, with its hazards to health and life, was likewise lessened. Other measures designed to improve family life and housing relieved misery and had positive effects on health. Similarly, social security measures had to be considered beneficial in that connexion.

33. The mortality decline observed in Asia could be traced to the operation of those measures in varying degree. The current range of death rates was approximately 5 (in a few countries) to 20 per thousand, whereas, in the 1930s, it had probably been around 20 to 35 per thousand. While reduced mortality was the major factor in the high rate of population growth, policy measures improving the health level should continue to have high priority for humanitarian reasons.

34. The net effect of better health and mortality conditions appeared to be an increase in fertility at first. However, it was hypothesized that, as prospects for survival of children improved, parents might be satisfied with fewer births. Again, education and improved communications spread awareness of the benefits and means of planning family size. Education of women also raised the marriage age and so tended to lower fertility.

35. The effect of industrial development on fertility involved consideration of a complex set of factors needing much study. Studies analysing the relationships between agricultural development and population change had barely begun. ECAFE was undertaking a comparative study to investigate those relationships,[13] and FAO was concerned with the problem of quality and quantity of food supply for increasing numbers.

36. Urbanization, along with industrialization, was believed to have been a historical factor in reducing fertility in Western countries. In currently developing countries in Asia, however, there was little indication of important urban-rural fertility differentials. Deeper study of intervening variables was needed. The effect of income levels upon fertility was likewise a complex matter, calling for sophisticated study. The relevance to fertility of regulations of employment conditions, such as provisions for maternity leave and benefits to children, could also be a subject for investigation.

37. Analysis of migration was greatly hampered by paucity of data. International migration was negligible in Asian ECAFE countries, although the characteristics of migrants were important. Governmental policies with respect to international migration seemed to be largely based on concern that employment opportunitiss for their citizens should not be jeopardized by immigrants. Countries with government social service programmes might not wish to face increased demand arising from immigration. On the other hand, countries might restrict the departure of persons with higher education and skills.

38. Internal migration was less easy to regulate. The settlement of nomadic people had been attempted, as had relocation of people from overcrowded, remote or poorly endowed areas. Large-scale transfers of persons for the express purpose of redistribution had not met with great success. Location of industries also influenced population redistribution, but not much had been attempted in that respect.

39. Better economic opportunity was the principal incentive for migration. Policies aimed at improving agriculture, such as farm credits, irrigation schemes and land reclamation, might diminish the flow from rural areas or redistribute rural population more advantageously. Laws relating to land tenure and inheritance also affected movement from the land.

40. Related to the economic motive were the advantages of education and training, which drew people to areas offering such facilities. Provision for health care and other social benefits also attracted people from less advantageous areas. Government policies had a direct bearing on those factors.

41. It was urged that Governments examine their development plans for consistency. Where conflicts between ends or means were discerned, they should be resolved. Governments could also conduct with profit an evaluation type of research into the factors germane to the success or failure of development plans.

IV. Demographic Factors in Manpower and Employment Problems

A. Influence of changes in fertility, mortality and migration on age composition and manpower

42. The seminar considered how variations in fertility, mortality, and migration affected the size and structure of the labour force through their effects on the size and

13 A comparative study of selected countries, "Population and agricultural change", is being prepared by the Population Division of ECAFE.

age structure of the population. Other factors being equal, a population with a larger proportion in the primary adult working ages would have a larger labour supply than a population with a larger proportion of children and older persons.[14]

43. Changes in age structure were accomplished in varying degrees according to the operation of the different elements of population dynamics. Changes in fertility produced a more pronounced alteration of the age structure than the same degree of changes in mortality, and the migration component of population dynamics had the most immediate effect. Immigration usually increased the proportion of young adults in the observed population and emigration therefore usually reduced it. Since in nearly all countries, internal migration was of considerably greater volume than international migration, the change differentiated subnational regions. Internal migration, in most of the Asian countries, was responsible in large part, if not entirely, for differences between rural and urban population age structure.

44. An important distinction had been drawn between the ultimate and the transitional effects of changes in the basic demographic variables, particularly fertility. Transitional effects could be postulated by making projections with various assumptions as to possible trends in fertility, mortality, migrational and economic activity rates, but there was a time lag of some fifteen years before fertility changes had a direct effect on the flow of persons into the labour force.

45. In the discussion, it was noted that mortality declines had had significant effects upon rates of economic activity in some areas. The increase in manpower without a corresponding increase in job opportunities might well lead to the problem of unemployment and underemployment displacing the spectre of inadequate food supplies as a primary matter of concern in the following decades. While demographic factors were primary determinants of manpower, the demand for labour was determined primarily by economic variables, including levels of income, savings and investment. The view was expressed that a major decline in fertility was unlikely to occur without accompanying improvements in social conditions which would include greater participation of females in the labour force, and that generalizations with respect to the nature of such changes had to be viewed with caution. The observation was also made that separate analysis of the impact of migration on the labour force was needed in countries experiencing significant migration.

46. The seminar's discussion of the topic was concluded with the observation that techniques for measuring both the transitional and ultimate effects of the demographic variables upon the dimensions of the labour force were available. What was needed was improved data relating to those variables and studies of the interrelations among the demographic factors and economic activity rates.

B. Trends in labour force participation by age and sex in relation to education and skill

47. The seminar stressed the need for information on the education and level of skill of the population and the labour force, so that manpower planners could assess the balance likely to develop between the future supply of and demand for labour in terms of qualifications. It was remarked that the level of formal education attained did not always serve as an adequate indication of levels of skill, even where the education was vocationally or professionally oriented.

48. Two distinct issues were brought out in regard to the relation between education and activity rates: (a) there was a need to analyse differentials in participation rates by level of educational attainment or skills and (b) there was also a need to analyse the impact of growing school enrolments upon the activity rates of the relevant age groups and upon the volume of new entrants into the labour force. The importance of these two types of analysis was illustrated by means of examples drawn from National Sample Surveys of India.[15]

49. The effect of improved education on rates of economic activity of adults was much more pronounced among women than among men, but the precise nature of that effect depended on the complex interaction of a number of factors affecting both the supply and demand for labour. Those factors included, in addition to cultural traditions affecting the role and status of women, costs of employing male and female labour, the relative advantage of either sex in certain occupations, and the changing composition of job opportunities as economic development proceeded. Mention was also made of such factors as rising expectations which accompanied improved levels of education, inflationary pressures which generated a need for supplementary income in the household, fertility reductions which freed women for economic activity outside the home, and, on the other hand, the difficulty of finding domestic help in large urban areas.

50. It was also noted that the increased participation of better-educated women in the labour force could be expected to give rise to increasing competition with men for jobs, particularly in "white-collar" occupations. The growth in college and university enrolments and in the numbers of highly trained men and women in the labour force posed a major challenge for education and manpower planning in the years ahead.

51. The discussion brought out the need to integrate educational planning and manpower planning so as to minimize imbalances. In particular, the lack of corres-

14 Farooq, G.M., "Influence of changes in fertility, mortality and migration on age composition and manpower", (POP/IPMP/DL/4). See part II of this report.

15 Visaria, P.M., "Trends in labour force participation by age and sex in relation to education and skill" (POP/IPMP/DL/5). See part II of this report.

pondence between the educational quality of labour supply expressed in terms of years of formal schooling completed and the demand for labour expressed in terms of specific skills and job qualifications was recognized as a serious problem.

C. Direct influence of fertility, mortality and migration on labour force participation rates

52. The seminar emphasized the critical importance of uniform concepts, definitions, and operational practices in permitting valid and reliable comparisons of labour force data, both between countries and within individual countries over time. In particular, the choice of the reference period for which an individual's status as economically active or inactive was to be determined, and the classification of unpaid family workers were cited as difficult problems to be resolved.[16]

53. The impact of demographic factors upon male activity rates was considered for several age-groups separately. Among young males (under 15), it was noted that severe economic pressures might force early entry into the labour force and increase the proportion of school drop-outs. That situation posed important questions for educational and manpower planners with respect to possible changes in the ages of compulsory school attendance, the possibility of affording financial inducements or support for school attendance, and the possibility of adjusting the timing of the school year to avoid periods of peak agricultural activity.

54. Among young adult males (15 to 24), the effect of increased school enrolment in lowering rates of economic activity was observed. However, it was also noted that if that was a reaction to inadequate labour demand, it could result in overcrowding school facilities and lowering educational standards.

55. One finding with respect to men in the central working ages (25 to 59) was the effect of measures providing for health care as a factor in improving their work capacities.

56. An important effect of reduced general mortality was the increase in the number of older men (60 and over). Whether that increase was accompanied by a proportionate increase in the labour force in that age category depended partly on the rural-urban distribution of the population. The urban wage-labour market provided relatively limited opportunities for elderly men to work and was likely to involve compulsory retirement ages and public or private pension support for retired workers.

57. It had been observed that female activity rates in industrialized countries were inversely related to fertility and directly related to the age of the youngest child. In developing countries, the hypothesis that declines in mortality, leading to the survival of a greater proportion of children, might permit higher participation rates of mothers because their older children could take the responsibility of caring for the younger ones was recognized as needing verification.

58. Four policy issues were brought to the attention of the seminar: (a) the need to reduce the burden of child dependency without sacrificing the education of children, (b) the need to re-direct the focus of educational planning toward vocational training so as to prevent over-expansion of university education, (c) the need to create improved job opportunities for women in the modern sector of the economy, and (d) the need for vocationally oriented training for women.

59. There was discussion of the proper emphasis to be given to labour-intensive vis-à-vis capital-intensive industries and technologies. It was observed that, for the export sector of developing countries, a capital-intensive technology might be necessary in order, for example, to compete internationally. Moreover, while recognizing the need to reduce unemployment and underemployment, it was pointed out that a labour-intensive but less efficient technology for the domestic sector might raise commodity prices, thereby lowering the level of living. On the other hand, it was observed that productivity was not invariably higher in capital-intensive technologies. It was also suggested that more research on intermediate technologies should be undertaken and that particular labour-intensive projects should be recommended which met the tests of competitive costs and technical feasibility.

D. Population growth and changing structure of economic activity

60. The seminar was informed that the prevailing trend among the less developed countries had been a rapid increase in the number of agricultural workers, with rates of increase not far below those of the labour force as a whole. It was noted that the proportion of total employment in the agricultural sector in less developed countries throughout the world had fallen by only two percentage points between 1950 and 1960, from 74 to 72 per cent. In view of the fact that economic development required a transformation in the industrial distribution of the labour force, it was observed that the process of "disagriculturization", which had to accompany sustained economic development, had been very slow in most of the developing countries in the Asian region.

61. An important factor impeding disagriculturization had been the rapid and accelerating rate of population growth. Both the existing structure of the labour force, which was predominantly agricultural, and the rapid increase in the size of the labour force had retarded expansion of the proportionate share of the non-agricultural sector in total employment.

62. Economic development required not only an increase in the relative share of the non-agricultural sector but also structural changes within that sector.

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16 Morita Y., and M. Seki, "Some problems in collecting manpower statistics" (POP/IPMP/DL/9). See part II of this report.

Those latter changes had been somewhat more rapid and widespread than disagriculturization in the developing Asian countries, as indicated by rising proportions of wage and salary employees and the declining proportions employed in traditional industries, such as textiles, trade, and personal services.[17]

63. Analysis of the processes of structural change, when restricted to "single-digit" classifications of occupation and industry, was inadequate and had, in the past, led to inconsistent and misleading conclusions. It was necessary, therefore, to utilize, on a selective basis, "two-digit" and in some cases, "three-digit" classifications in order to examine more closely the interrelations between the processes of changing employment structure and economic development and the effects of changes in industrial structure on the occupational structure. It was noted in that connexion that the United Nations recommendation for the 1970 population censuses provided for tabulation and cross-classification by industry and occupation, at least at the second digit level.

64. The redistribution of the labour force among fields of economic activity was largely brought about by occupational mobility, comprising movements between industries and status groups as well as between occupations. In analysing those shifts, it was useful to distinguish between inter-generational mobility, whereby sons and daughters adopted different fields of employment than those of their parents, and intra-generational mobility, which involved movements of individuals from one field to another during their working lives.

65. The important point was stressed that occupational mobility was concentrated in the early adult ages, and that the general tendency for a cohort's distribution among fields of economic activity to become frozen in middle age was one of the factors of inertia which might hamper quick adjustment of the labour force to the needs of economic development. Thus, the relative youthfulness of the labour force in the region, due to high birth rates, facilitated adjustment of the employment structure.

66. The importance of both international and internal migration in affecting the structure of employment was also noted. International migration was chiefly significant for its effects on high-level technical and professional manpower, whereas internal migration might have important effects among occupations in both the agricultural and the non-agricultural sectors and upon the geographic distribution of the labour supply. It was observed that the rate of natural increase of the labour force (the growth that would occur in the absence of migration, occupational mobility, or changes in activity rates) tended to be higher in the agricultural than in the non-agricultural sector. Thus, the relative share of employment in agriculture would tend to expand over time in the absence of occupational mobility.

67. The effect of differential rates of occupational mobility on the age structure of workers in particular occupations was also brought out. Groups which were growing by virtue of occupational mobility tended to be composed of younger workers while those which were losing by that process tended to be composed of a higher proportion of older workers who might be subject to the threat of structural unemployment or underemployment as the relative demand for labour in their fields diminished.

68. Productivity increases in the non-agricultural sector implied that non-agricultural production grew at a faster pace than non-agricultural employment. That implied, in turn, that non-agricultural production had to be increased even faster if the relative share of employment in the non-agricultural sector were to be increased.

69. With the preponderance of agricultural employment in most countries in the region, it was impossible to absorb productively the annual growth in the size of the labour force in the non-agricultural sectors. That implied the need to increase investment in the agricultural sector as well as in the non-agricultural sector. It was said that in one country, the investment cost of creating a job in agriculture was about half that in industrial activities. Moreover, cultural factors, including lack of motivation to seek jobs away from home, and insufficiency of markets for manufactured goods, impeded the movement of workers into industrial pursuits.

V. Population and Manpower Projections

70. The seminar discussed the relationships between changes in the size and composition of the population and changes in the labour force, as well as the relevance and utility of such relationships for projecting the labour force.[18]

71. The growth rates of the total population and of working-age population for the period 1950-1955 and 1955-1960 for some 30 Asian countries were compared with the growth rate of the labour force for the same periods of time, and it was found that there was often not a very close correspondence between population and labour force growth rates. Projections which directly substituted rates of population growth for rates of labour force growth should, therefore, be treated with caution.

72. The seminar also considered the relationship between changes in the sex-age structure of the population and of the activity rates of these population groups to the changes in labour force size and composition. It was concluded that the practice of holding sex-age

17 Durand, J.D., "Population growth and changing structure of economic activity" (POP/IPMP/DL.7). See part II of this report.

18 Ypsilantes, J.M., "The relationship between population changes and labour forces changes: Implication for manpower projections" (POP/IPMP/DL.8.) See part II of this report.

activity rates constant in projecting the labour force should be discouraged since that method appeared to lead to a projection error of 15 to 20 per cent per decade for Asian countries.[19]

73. In making labour force projections, the impact of changes in urban and rural populations had to be taken into account. The effects of differences in age structure and in activity rates between urban and rural population on the size and age structure of the total labour force were demonstrated by standardization techniques. The variations in the labour force caused by differences between urban and rural activity rates were found to be of greater importance than those caused by age structure, although the latter were not insignificant. The seminar concluded that countries should, when possible, make separate urban and rural projections by sex and age.

74. A review of evidence on population and labour force changes in Asian countries during the recent past had led to the conclusion that information on changes in population size, composition and distribution alone was insufficient to explain and project changes in size and sex-age composition of the labour force. Labour force projections had to take account of changes in activity rates of various age groups for males and females separately and of the social, economic, cultural and other factors which influenced these rates.

75. The ILO programme of labour force projections was described in some detail, and some preliminary results for a few Asian countries were circulated.[20] Those projections had been based on a standard methodology for projecting activity rates and on the medium-series population projections of the United Nations. They should be supplemented by national projections based on more detailed information, particularly for sub-areas and sub-groups of population, and on alternate assumptions as to population growth and labour force activity of women, youth and older persons.

VI. Research and Data Needs

76. The seminar received a report on the experience of Japan in developing concepts and definitions and in collecting manpower data with particular reference to the social and economic characteristics of the labour force, its work experience (including unemployment and underemployment), patterns of entry into and withdrawal from the labour force and movements between occupations.[21]

77. In reviewing those findings, the seminar considered the applicability of either the "current status" or "usual activity" approach toward labour force classification in countries at different stages of economic development. It was pointed out that when Japan was experiencing severe labour surpluses immediately after the Second World War, the "current status" approach was felt to be inadequate, but, with the growing labour shortages in recent years, and the rapid advances in industrial development, that approach was more suitable. The "usual activity" approach was suggested in cases where surveys could be taken at frequent intervals. Other suggestions included implementing monthly or quarterly surveys conducted with the "current status" approach by annual surveys conducted by the "usual status" approach. The ILO representative stated that the international standards were only indicative and it was for the countries to develop their own concepts and definitions to suit their circumstances.

78. With regard to major areas of needed research, the seminar's attention was focused upon the following: (a) the effects of declining mortality; (b) the analysis of fertility differentials and their determinants; (c) the study of migration (both internal and international); and (d) the study of education and training, both in terms of curriculum reform and in terms of relevance to population and manpower dynamics.

79. With respect to declining mortality, the seminar considered the need for studies of the effect of mortality declines upon the values and attitudes of the population with respect to the acceptance of family planning and limitation, the acceptance of education as a long-term investment, and changing attitudes toward work, career advancement and planning for the future. It was agreed that research was also needed on the effects of reduced morbidity and debility associated with mortality declines, on food consumption habits and on labour productivity and the length of working life.

80. The seminar considered the need for analysis of differential fertility as between migrants and non-migrants, among workers in different occupations, and among families classified by the educational attainment of the head. Finally, the need was expressed for studies of differential fertility and of family size and age of children in relation to the labour force participation rates of mothers.

81. The seminar noted the need for studies of international migration which would focus upon the net gain or loss of persons possessing particular skills or professional qualifications, and designed to provide information as to means whereby such talent might be retained by or attracted to the respective countries. With respect to internal migration, a need was expressed for studies focusing on rural to rural, urban to urban, and urban to rural movements, in addition to studies concerned with rural to urban migration. In particular, it was felt that studies of urban to rural movements might yield useful information concerning the spread of modern attitudes and values within rural areas.

82. With respect to studies of education, it was noted that the study of the curriculum and scheduling of formal schooling in rural areas should focus on ways to adapt the system to the requirements of life in those areas, both with respect to vocational training in needed skills and with respect to the scheduling of classes so as

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19 Farooq, G.M., *op. cit.*

20 Ypsilantis, J.M., *op. cit.*

21 Morita, Y., and M. Seki, *op. cit.*

to avoid periods of peak agricultural activity and thus reduce the rate of drop-outs. Finally, it was felt that family formation and household size were being influenced by education, and that that relation merited further study for its relevance to population policy and family planning programmes.

83. The seminar's discussion concluded with brief observation of the need to assess priorities with regard to data requirements and to devote careful attention to concepts as well as to processes of data collection so as to ensure the validity of the data obtained. The need to develop short-term and long-range forecasts and projections relating to the interrelations among population, manpower and the objectives of economic development was also noted. Finally, reference was made to the need for effective communication of research findings and interpretations, not only among specialists in the several disciplines concerned, but between specialists and policy makers.

VII. Conclusions and Recommendations

A. Population and manpower policies

84. Manpower and population policies were essential components in national, regional and international goals, plans and programmes.

85. Population policies should be comprehensive and should cover such items as rates of population growth; regional and other changes in population distribution; internal and international migration; the structure of population; and characteristics significantly related to population quality as well as growth.

86. Manpower policies should likewise be comprehensive and should cover the composition, characteristics, and distribution of the labour force; the dynamics of supply and demand at national and regional levels and their relation to characteristics and skills; and the deployment and utilization of the labour force.

87. Flexibility and continuing adjustments in manpower policies and goals were required in the current period of rapid population growth, basic tranformations in agriculture, and insufficiencies in skills and employment.

88. Population and manpower policies could involve inconsistencies or even conflicts in such areas of change and development as education, health, the role of women, the family, fertility, income distribution and economic growth. Where conflicts existed, their resolution should take into account long-run implications of short-term solutions.

89. As population and manpower dynamics were not spheres apart but concerned the human aspect of development, the impact of other policies, plans, programmes and sectoral changes on them should be the subject of continuing assessment, analysis and evaluation. The relative feasibility, efficiency and consistency of direct and indirect policies in the short and the long run should likewise receive continuing attention.

B. Research and data collection

90. Present information about population and manpower problems, their interrelations and their links with other economic and social problems in ECAFE countries was not adequate to provide a complete basis for formulating effective, integrated policies and action programmes, within the framework of national development plans. Efforts to cope with those problems could not wait for the development of comprehensive information, but intensification and expansion of relevant research and data collection activities should be pushed ahead, simultaneously with policy formulation and the programming of action.

91. Principal fields for development of research and data collection relevant to problems examined by the seminar were:

A. Population and Manpower Dynamics

1. Dimensions and structure of employment
2. Employment of women
3. Education and skills
4. Internal migration
5. International migration

B. Population and Manpower Problems in Relation to Economic and Social Development

1. Agricultural change, employment, and population
2. Industrialization and urbanization
3. Choice of technologies in the industrial sector
4. Income distribution

C. Population and Manpower Policy Considerations in Economics and Social Development Planning

1. Problems of consistency
2. Problems of evaluation

92. An outline of major research objectives in each of those fields, particular questions for study, needs for basic data, and other steps to be taken is given in annex III of this report, as a part of the recommendations of the seminar.

93. In order to analyse problems of interrelations in a meaningful manner, it was necessary to collect relevant data on population and manpower variables in the context of socio-economic development and planning. That implied attention to:

(a) improvement of concepts, definitions and methodology appropriate to the conditions of each country;

(b) development of sources of data;

(c) tabulation, analysis and dissemination of data;

(d) co-ordination of agencies engaged in collection of the data.

94. There was urgent need to review the concepts and definitions of employment, unemployment, underemployment, labour force participation of women, unpaid family workers (especially female) and rural and urban population, as well as the industry, occupation and education classification systems.

95. Special emphasis should be given to the improvement of data collected through the population census, industrial and agricultural censuses, household sample surveys, establishment surveys and labour market information programmes. The data required tabulation and cross-tabulation according to the special needs of research and policy-making.

C. Co-operation and co-ordination

96. In view of the importance of the problems of interrelation of population and manpower policies and taking into account the seminar's recommendations, the Executive Secretary of ECAFE might consult high-level experts in those fields and hold meetings of experts and policy-makers to discuss and advise on the over-all and specific problems of member countries. Such consultations and meetings shoud be aimed, *inter alia*, at bringing about close co-ordination between population and manpower policies on the one hand and policies in related fields, such as education and health, on the other, in the context of social and economic development goals. The ILO and other agencies concerned might participate in such consultations.

97. The moderation of population growth appeared to be a correlate of economic and social development, and family planning programmes themselves required efficient utilization of human resources. Current arrangements to facilitate that utilization in member countries might be strengthened. For example, appropriate national and international agencies might provide advice and consultant services on the development of technologies for various capital/labour cost situations. That activity needed to be project-oriented, and pilot projects might be undertaken in individual countries to utilize available manpower. The work of United Nations agencies in that field should be co-ordinated and intensified, and, if necessary, new organizational arrangements might be made.

98. There was need for co-ordination among the government departments and other agencies in order to avoid duplication. There was also a need for co-ordination among the international and bilateral programmes of technical assistance to the Governments in that field.

99. Arrangements should be made to promote research and training in research on interrelationships of population, manpower and economic development problems in the region. ECAFE and other United Nations bodies had already initiated studies on certain aspects of interrelations between population and manpower problems. It was essential however, that that programme of research should be accelerated and extended in the fields outlined in paragraph 91.

100. There was need to intensify and widen the scope of training on population and manpower dynamics and interrelationships.

101. As a follow-up of the current seminar, further seminars and studies might be organized on special aspects of the interrelationships. The forthcoming Asian Population Conference and other conferences should give special attention to the interrelationships between population and manpower as they were vital for social and economic development planning in the Second Development Decade.

102. In countries where manpower planning councils or committees had been organized or were going to be organized their co-operation should be extended so far as possible to include authorities concerned with the field of population. Similar co-ordination should exist between population councils and manpower councils.

103. UNFPA and other appropriate sources might be approached to emphasize the relationship between population and manpower problems among its various activities. Support by UNFPA for the research, development, and training activities, seminars and conferences, as well as the co-ordination and promotion of the policies suggested above would go a long way towards an integrated approach to the problems of population and manpower planning at both the national and regional levels.

Annex 1

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Annex II

LIST OF DOCUMENTS

1. United Nations and International Labour Organisation documents for the seminar

Aide-memoire	POP/IPMP/1
Provisional agenda	POP/IPMP/2
Annotated provisional agenda	POP/IPMP/3
Demographic Analysis of Manpower Development with Particular Reference to Developing Countries, prepared by Mr. Denis F. Johnston for the United Nations Headquarters office as a background paper for the Interregional Seminar on Demographic Aspects of Manpower held in Moscow, 31 August - 11 September 1970 (Reference document)	POP/IPMP/4-1
Report of the Interregional Seminar on Demographic Aspects of Manpower held at Moscow, 31 August - 11 September 1970 (Reference document)	POP/IPMP/4-11
Manpower Demography of Countries in Asia and the Far East, prepared by Prof. John D. Durand for the ECAFE secretariat (Background paper)	POP/IPMP/5
Interrelationship between Population and Manpower Problems in the Context of Socio-economic Development of the ECAFE Region, prepared by Mr. S.P. Agarwal for the International Labour Organisation (Background paper)	POP/IPMP/6
Asian Population Problems and Policies, by the International Labour Organisation (Reference document)	POP/IPMP/7
Projections of Asian Countries Active Population, by the International Labour Organisation (Reference document)	POP/IPMP/8
Methods of Analysing Census Data on Economic Activities of the Population, United Nations publication ST/SOA/Series A/43 (Reference document)	POP/IPMP/9
Manpower resources of Asian countries in the 1970 by Mrs. Irene B. Taeuber	POP/IPMP/10[a]

2. Introductory statements prepared for sessions of the seminar by discussion leaders and resource persons

The Problems as Viewed in the Broader Context of Development Economics, prepared by Mr. P.C. Mathew	POP/IPMP/DL/1
Population and Manpower Policies, prepared by Mrs. Irene B. Taeuber	POP/IPMP/DL/2
Influence of Policy Measures on Mortality, Fertility, Migration and Population Growth, prepared by Mr. Carl M. Frisén	POP/IPMP/DL/3
Influence of Changes in Mortality, Fertility and Migration on Age Composition and Manpower, prepared by Mr. G.M. Farooq	POP/IPMP/DL/4
Trends in Labour Force Participation by Age and Sex in Relation to Education and Skill, prepared by Mr. Pravin M. Visaria	POP/IPMP/DL/5
Direct Influence of Changes in Mortality, Fertility and Migration on Labour Force Participation prepared by Mr. J.N. Sinha	POP/IPMP/DL/6
Population Growth and Structural Changes in Labour Force by Industry and Occupation, prepared by Mr. John D. Durand	POP/IPMP/DL/7

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a This is the earlier version of document POP/IPMP/DL/2.

Relationship between Population Projections and Manpower Projections, prepared by Mr. James N. Ypsilantis	POP/IPMP/DL/8
Sources, Availability and Improvement of Data Needed for Demographic Analysis of Manpower Including Problems of Definition of Concepts, prepared by Mr. Y. Morita	POP/IPMP/DL/9
Demographic Measurement and Research Needed for Manpower Policy and Planning, prepared by Mr. Asoke Mitra	POP/IPMP/DL/10

3. Country statement prepared for the seminar

Afghanistan	POP/IPMP/CP/1
Australia	POP/IPMP/CP/2
Brunei	POP/IPMP/CP/3
Ceylon	POP/IPMP/CP/4
China (Taiwan)	POP/IPMP/CP/5
Fiji	POP/IPMP/CP/6
Hong Kong	POP/IPMP/CP/7
India	POP/IPMP/CP/8
Indonesia	POP/IPMP/CP/9
Iran	POP/IPMP/CP/10
Japan	POP/IPMP/CP/11
Khmer Republic	POP/IPMP/CP/12
Korea, Republic of	POP/IPMP/CP/13
Malaysia	POP/IPMP/CP/14
Nepal	POP/IPMP/CP/15
Papua/New Guinea	POP/IPMP/CP/16
New Zealand	POP/IPMP/CP/17
Pakistan	POP/IPMP/CP/18
Philippines	POP/IPMP/CP/19
Singapore	POP/IPMP/CP/20
Thailand	POP/IPMP/CP/21
Viet-Nam, Republic of	POP/IPMP/CP/22
Western Samoa	POP/IPMP/CP/23

Annex III

DETAILED RECOMMENDATIONS ON RESEARCH AND DATA COLLECTION

A. Population and Manpower Dynamics

A 1. Dimensions and structure of employment

Purposes:

1. To examine the relationship between the growth and changing distribution of population and labour force on the one hand, and the development of opportunities for employment on the other, as an essential basis for policies and action programmes relating to manpower and employment, and as an aspect of the economics of population policy.

2. To examine possible effects of the structure of employment upon fertility and its trend, as a population policy consideration in the planning of action programmes relating to manpower and employment.

Steps to be taken:

1. Studies of the impact of population growth and changing distribution and sex-age structure of population upon labour force participation rates, dimensions of employment, processes of change in the structure of employment and internal migration.

2. Studies of fertility differentials according to industry, occupation and status, and of relations between fertility trends and the structure of employment in different areas.

3. Short-and long-range projections of population, labour force, dimensions and structure of employment, taking into account so far as possible the interrelations between demographic variables and manpower and employment variables in the context of expected economic and social developments. Such projections are needed for rural and urban segments and significant regional components of countries.

Data needed:

1. Benchmark measures of population, labour force and dimensions and structure of employment, with appropriate classifications by sex, age, rural or urban residence and regions. Employment structure should be represented by classifications and cross-classifications of industry, occupation, and status such as to identify the most significant categories of economic activities in relation to the problems of employment and development planning.

2. Measures of levels and trends of mortality, fertility, rural-urban migration, and international migration where this is an important factor.

3. Measures of fertility differentials according to occupation, industry, and status, and/or data on fertility trends over time in various areas, differentiated in terms of structure of employment.

A 2. Employment of women

Purposes:

1. To examine interrelations of employment of women with economic and social development, urbanization and conditions of employment opportunity as a part of the basis for projections of female labour force and the size and structure of female employment, and for related considerations of manpower and employment policy.

2. To examine the interrelationship between fertility and employment of women, in order to assess the efficacy of encouraging increased participation of women in the labour force as a means of reducing fertility.

Questions for study:

1. Rural-urban differences in female labour force participation rates and dimensions of employment of women.

2. Variations of levels and trends of female labour force participation rates and dimensions and structure of female employment, in relation to aspects of economic and social development, such as the structure of employment of both sexes, level of income, and education, and in relation to levels of unemployment and underemployment.

3. Differences in marriage patterns and fertility between women in the labour force and not in the labour force and among women employed in various industry, occupation, and status categories.

4. Differences in labour force participation rates and structure of employment of women according to marital status and number and ages of children.

5. Effect of the structure of employment in the community upon the pattern of interrelationships between employment of women and fertility and marital status.

6. Effect of the level of education upon the pattern of these interrelationships.

Data needed:

Data on women in and not in the labour force, and employed women classified by extent of their employment and by occupation, industry and status categories. Cross-classifications by age, urban or rural residence, marital status, number and ages of children, educational level and data for areas differentiated according to social and economic characteristics, as appropriate for studies of the questions outlined above.

A 3. Education and skills

Purpose:

To provide information on educational and skill levels of population and manpower. Such information is essential for (a) integrating policy and programmes of education and training with those of population, manpower, and other fields of economic and social development, and (b) for achieving optimal balance between supply and demand for labour.

Projections needed:

1. Projections of school-age population and school enrolment by sex, age, and level of schooling.

2. Projections of numbers of persons entering the labour force according to levels of education, by sex.

3. Projections of working-age populations and labour force by levels of education and skill, by sex.

4. Projections of labour demand according to occupational group and according to levels of education and skill.

Data needed:

1. Population of working age classified by levels of education, and those who have acquired essential skills through on-the-job training or other means, by sex and age groups.

2. School-age population enrolled in school at various levels and not enrolled, numbers and proportions leaving school at various levels.

3. Labour force participation rates according to levels of education, sex, and age.

4. Cross-classification of occupational groups and educational levels of the labour force, by sex.

Studies required:

1. Studies of current and future demand for labour, in terms of required levels of education and skill in various occupations, industries, and geographical areas; with special attentions to implications of action programmes in the fields of population, education, manpower, and economic development.

2. Studies of the future supply of workers, in terms of their educational levels and skills.

3. Studies of interrelations of educational level, labour force participation, employment, and occupational distribution of employed workers, by sex.

A 4. Internal migration

Purpose:

To develop information on internal migration, especially between rural and urban areas, factors affecting such migration, and its effects on (a) the growth and distribution of population and labour force, (b) the dimensions and structure of employment, (c) the economic and social development of urban and rural sectors, regions, and the nation as a whole. Such information is an essential basis for policies and action programmes relating to internal migration, and to other aspects of population, manpower, and economic and social development.

Questions for study:

1. Factors in internal migration: effects of growth and pressure of population on the land, of conditions of employment opportunity and earnings in areas of origin and destination, and of other factors upon the volume and directions of migration.

2. Demographic and manpower characteristics of migrants, and the role of migration in the growth and changing structure of population and manpower in urban and rural areas and regions.

3. Effects of migration and of the growth and structural changes of population and manpower in the areas of origin and destination on conditions of employment, earnings, and other economic and social developments.

Data needed:

1. Measures of volume and rates of internal migration, especially between rural and urban areas, and trends in such migration over time.

2. Classifications of migrants and non-migrants according to sex, age, marital status, labour force participation and employment, occupation, industry, status (as employer, employee, unpaid family worker, etc.) and educational level.

3. *Reasons for migration as stated by migrants.*

In most countries of Asia, data on internal migration, particularly that of a seasonal or temporary character, is far less adequate than data on population and labour force. Careful statistical programming is needed to meet the principal requirements. The basic source of data is the census, but the censuses of some countries in the region have failed to provide data on internal migration, and those of some other countries have given such data in forms which have provided no measures of migration between rural and urban areas. Improvement of census data in this field is urgently needed. In addition, current and supplementary data may be obtained by *ad hoc* and recurring sample surveys.

A 5. International migration

Purposes:

1. To study the problem of "brain drain," i.e. the skills, educational attainments, and occupations of international migrants, in relation to the development of supply and demand for highly skilled and educated manpower.

2. To examine the interrelation between population growth and international migration.

Data needed:

1. Data on economic characteristics of international migrants, including occupation, industry, educational levels and work experience.

2. Other data on international migrants, for nationals and aliens, as recommended by the United Nations and the ILO.

3. Estimates of the stock and annual additions of highly skilled and educated manpower.

Questions for study:

1. Impact of migration of highly skilled and educated manpower on development, particularly in countries of origin.

2. Factors affecting such migration in countries of origin and destination.

3. Socio-economic characteristics of international migrants, examined in relation to (a) their demographic characteristics, and (b) their position relative to non-migrants.

B. Population and Manpower Problems in Relation to Economic and Social Development

B 1. Agricultural change, employment and population

Purposes:

1. To assess the impact of technological change and other developments in agriculture on employment and income.

2. To project the demand for special skills arising from the new agricultural technology.

3. To analyse effects of changes in agriculture on the trends of fertility, migration and population growth.

4. To examine effects of population growth on technological and other developments in agriculture.

Questions for study:

1. Effects of the new technology and other developments in agriculture on employment and needs for special skills should be examined. A distinction should be made between effects on labour demand in terms of persons and effects in terms of man-hours. Effects on the seasonality of labour requirements should also be considered. Whether the relative market prices of labour and other factors of production encourage adoption of labour-displacing technology is a question of special importance.

2. Effects of the rise in productivity, resulting from the new technology, on the structure of employment in the rural sector should be examined.

3. The influence of new technology and other developments in agriculture on the level and distribution of income in the agricultural sector should be investigated.

4. Demographic effects of technological and other developments in agriculture should be studied, with special attention to effects on rural-urban migration and fertility.

5. Conversely, effects of demographic factors on technological changes, extension of areas of cultivated land, and other developments in agriculture should be examined. Among the demographic factors to be considered are natural increase, migration, and growth of population in rural areas, and changes in size and composition of families.

Data needed:

1. Acreage and yields of crops.
2. Labour and other inputs in agriculture.
3. Land tenure and socio-economic infrastructure in rural communities.
4. Prices of agricultural products and inputs.
5. Fertility, mortality, migration, and population growth in rural areas.
6. Size and composition of agricultural families.
7. Labour force and dimensions of employment in rural areas.

B 2. Industrialization and urbanization

Purposes:

1. To examine the interrelations between urbanization and industrialization.

2. To assess the impact of urbanization and industrialization on population and manpower.

3. To formulate policies and action programmes aimed at regulating and improving the impact of industrialization on urbanization, and of industrialization and urbanization upon population and manpower.

Data needed:

1. Measures of industrialization in terms of the structure of employment and/or size and growth of industrial production.

2. Measures of urbanization in terms of size and growth of urban population, its distribution among size-classes of cities, and its proportion to total population.

3. Data on dimensions and structure of employment according to occupation, industry, and status in urban and rural areas and size-classes of cities.

4. Data on the demography of rural and urban communities, including fertility, mortality, migration, population growth, and sex-age structure of populations.

Questions for study:

1. Impact of urbanization and industrialization upon population dynamics.

2. Impact of urbanization and industrialization upon dimensions and structure of employment.

B 3. Choice of technology in the industrial sector

Purpose:

To provide a framework for a strategy of technological development in the industrial sector, designed to reconcile the objective of maximizing production and maximizing employment as well as possible, in view of the priorities attached to these objectives.

Steps to be taken:

1. To define concepts of labour-intensive, capital-intensive, and intermediate technology.

2. To measure labour and capital intensity of industries, technologies and enterprises, and to study historical trends in these respects.

3. To examine the relative efficiency of labour-intensive, capital-intensive and intermediate technologies, with regard to costs per unit of output, productivity per unit of labour and capital inputs, profitability and rate of return on capital, net value added, etc.

4. To assess effects of choices between alternative technologies on dimensions and structure of employment.

5. To select economically viable strategies of technological development and industry composition of the industrial sector, as consistent as possible with both the employment and output objectives of development plans.

6. To examine the role of small-scale, cottage, and handicraft industries, and rural industrial estates, in such strategies of technological development.

B 4. Income distribution

Purpose:

To provide guidance for the formulation of policies calculated to evolve equitable and acceptable income distribution among the population and its different groups and classes.

Steps to be taken:

1. To define concepts of family income, disposable income, levels of living and allied terms.

2. To arrange for surveys of wages and earnings, consumer expenditure and levels of living.

3. To arrange for tabulation and publication of data on taxes on incomes.

4. To arrange for analysis of data on real net income after taking into account consumption of social services and benefits.

C. Population and Manpower Policy Consideration in Development Planning

C 1. Problems of consistency

Purpose:

Population and manpower policy objectives and actions taken to implement them may conflict with each other and with objectives and actions in other economic and social fields. It is important to recognize such conflicts and resolve them as well as possible in the framework of an integrated development plan. Not only the priorities attached to the different objectives, but also the importance of effects of conflicting actions in relation to each objective, should be considered.

Steps to be taken:

1. Identification of principal points of conflict.
Some examples of conflicts which may occur are:

(a) Production-oriented strategies of investment and technological development may conflict with employment-oriented strategies.

(b) Both production-oriented and employment-oriented strategies may conflict with policy objectives as regards rural-urban migration and the decentralization of urban population growth.

(c) Promotion of labour-intensive methods in agriculture and of rural cottage industries as measures of employment policy may conflict with efforts to reduce fertility.

(d) Increasing employment of women outside the home, especially in relatively well-paid jobs in "modern" industries and occupations, as a means of reducing fertility as well as giving effect to the principle of equal opportunity for the two sexes, my conflict with objectives of employment security and adequate earnings for principal family breadwinners.

(e) Planned provisions for development of the educational system may not be consistent with the requirements for manpower at various educational levels which are implicit in the employment targets of the plan.

2. Assesment of effects of conflicting actions.

The importance of effects of such conflicting actions in relation to policy objectives in each of the fields concerned should be assessed, if possible in terms of quantitative estimates, so as to provide a basis for a rational selection among alternative courses of action, in view of the priorities attached to these objectives.

For example, as an aid to reconciliation of policy objectives as regards urbanization and urban decentralization with other objectives of a national development plan, it may be useful to introduce a classification of metropolitan centres, other urban areas, and rural areas into the investment and employment targets of the plan as well as the population targets.

Questions for research and data needs:

Present knowledge of the interrelations of demographic manpower and other economic and social variables is far too little, on the whole, to furnish a firm basis for estimating effects of such confling actions. The research questions listed under other headings of this outline, with the corresponding needs for data, are relevant here.

C 2. Problems of evaluation

Purpose:

A development plan should be not only formulated but also evaluated from the viewpoints of population and manpower policy objectives, as well as other major objectives. Attention should be paid both to the adequacy of the plan targets and the sufficiency of planned actions for achieving these targets.

Steps to be taken:

1. The population, manpower and employment targets stated or implied in the plan should be examined in the perspective of longer-range projections, in order to assure their consistency with satisfactory short-and long-range solutions of population, manpower and employment problems.

2. In particular, the population and manpower targets should be compared with the employment targets implied in the plan in order to assure that, so far as possible, the conditions of employment opportunity and the unemployment and underemployment rates in the labour force as a whole, and in various segments, will represent a satisfactory or at least tolerable state of affairs.

3. Likewise, the population and manpower targets should be compared with the targets stated or implied in the plan for developments in other fields, such as consumption of food, housing, other social services and education, so as to assure that the planned developments will, so far as possible, satisfy essential needs of the people.

4. The planned programmes of action in various spheres affecting fertility, mortality, migration, growth and redistribution of population, and size and structure of employment should be examined to verify that these actions are reasonably sufficient to achieve the population, manpower and employment targets.

Research and data needs:

1. Evaluation must be based on research into interrelations among demographic, manpower and other economic and social variables, along the lines indicated above.

2. Where a family planning programme is included in the plan of action, evaluation of its expected impact on population and manpower poses an important problem.

3. Continuing research and experimentation with methods for evaluating family planning programmes is an important need, with provisions for international exchange of information on methods and results.

ANNEX IV

COUNTRIES IN THE ECAFE REGION, AS OF 1970

(according to geographic classification observed by the United Nations Population Division)

East Asia

China, People's Republic of [a]
China, (Taiwan)
Hong Kong
Japan
Korea, Democratic People's Republic of [b]
Korea, Republic of
Mongolia

Middle and South-East Asia

Afghanistan
Brunei
Burma
Ceylon
India
Indonesia
Iran
Khmer Republic
Laos
Malaysia
Nepal
Pakistan
Philippines
Singapore
Thailand
Viet-Nam, Democratic Republic of [b]
Viet-Nam, Republic of

Oceania

Australia
Fiji
New Zealand
Papua and New Guinea
Western Samoa

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a In 1970, not an ECAFE member, and data thus provided separately (excluding Taiwan); also frequently included in population totals.

b Not a member of ECAFE, but frequently included in population totals.

PART II

SELECTED PAPERS

POPULATION AND MANPOWER POLICIES: DIMENSIONS AND APPROACHES*

There are increasing diversities among Asian countries, and the alternatives for futures are more complex than they once were.

How, then, does one discuss population and manpower policies in a context that is constructive rather than simply conjectural? How does one formulate policies that can be integrated in development strategies of demographic and related developments? Summary statements of present interrelations and the dilemma of policy inherent therein may be a useful starting point.

(1) The population dynamics of the years from 1970 to 2000 will be expressed in death rates moving downward in countries and among groups where they are now high; economic and social forces and special programmes will contribute to declining fertility. Increases in rates of growth may occur in some areas, though declines are likely to be more prevalent.

(2) The maintenance of the economic, health, and other developments that sustain declining mortality contribute to the deepening of the economic and social forces and the planned actions that underlie declining fertility. Given economic development and political stability, though, the critical questions concern the timing and the speed of the declines in fertility.

(3) The presently available and the prospective future technologies to increase agricultural productivity can extend the period of time in which increasing populations can be sustained from limited lands. Increasing yields are arduous achievements. Insufficiencies remain; famines may still occur. Moreover, the possibilities for increasing food production under the new technological and managerial complexes are not indefinitely expansible.

(4) The new technological complexes introduce industrialization into rural areas already characterized by massive underemployment. The resolution of the problems of food production may intensify problems of employment, social stability, and political order in the rural areas and in the cities to which the people migrate.

(5) In the absence of balanced strategies of development, further increases and even gains already achieved in longevity may be at hazard.

(6) The inclusion of the sphere of human reproduction in plans and programmes for the health and vitality of mothers and children is now occurring. This should contribute to family health and an oncoming labour force with increased vitality. It should also contribute to lower rates of population growth. It is unlikely to yield sufficient declines to resolve the problems of population growth in much of Asia.

(7) The advances of science and technology were essential to, but not sole determinants of, declines in mortality and increases in productivity. It is probable that a similar condition will relate to human reproduction.

(8) Rates of reproduction are related to levels of living, social factors and rising expectations. Advancing ages at marriage and the control of fertility within marriage are related aspects of the transition from traditionalism to modernism.

(9) Movements toward smaller families should be stimulated by programmes designed to make knowledge and means of family planning available. Impacts should become greater as simpler, more acceptable, and more efficient means become available.

(10) As economic growth is now proceeding, it is not a sufficient stimulant to fertility decline. It is likely that the circularity between the rapid population growth that slows economic growth and the slow economic growth that leaves the mores of high fertility largely untouched can be breeched most efficiently through related processes of change.

(11) Education is essential to economic and social development. It leads to participation beyond the personal contacts of kin and community. Educational facilities at elementary levels for all children, girls as well as boys, along with increasingly advanced education for technical, managerial, and professional personnel are requisite. The advanced education of women and their participation in the labour force outside agriculture or domestic service are associated with later ages at marriage and smaller families. But the extension of education is difficult as long as population

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* The document was prepared for the Seminar at the request of the ECAFE secretariat by Dr. I.B. Taeuber, Office of Population Research, Princeton University, United State of America. The views expressed are those of the author and not necessarily those of the ECAFE secretariat, of the United Nations or of Princeton University.

Portions of this paper are based on a report for the Second Regional Conference of the International Planned Parenthood Federation, Western Pacific Region, "Population—70, Family Planning and Social Change", Tokyo, 13-16 October 1970. That report was entitled, "Manpower resources of Asian countries in the 1970s".

growth continues without the brakes introduced by later ages at marriage and smaller families among the married. The high fertility that is associated with educational retardation is also associated with sparsities of jobs for men.

(12) Since economic development, education and levels of reproduction are interrelated so closely, prior modernization in one field cannot be assumed as determinant of changes in other fields. If economic development is not a sufficient cause for declining population growth, the converse argument is also true. Declining population growth is not sufficient stimulant for economic development.

(13) Thus there is a fundamental dilemma. The slow interrelated transformations we call demographic transitions were feasible in countries now modernized. Economic development came early, with space and resources available within or outside the countries. Death rates declined slowly; birth rates did not approach the levels now prevalent in the less developed countries. Rates of population growth never reached the levels now prevalent, and they declined slowly. In Asia, massive populations existed prior to the intensive drives for economic development. Birth rates were very high, while death rates declined early and sharply. Rates of growth seldom matched in earlier periods or other regions are common today. Land is occupied densely. Migrant outlets are limited. Economic development lags. Past patterns of change would be insufficient even if they occurred, and they are unlikely to occur in many areas.

(14) The slow interrelated transformations called demographic transitions were feasible in countries now modernized without explicit policies or programmes of governments. Today, reliance on science, technology, rationality and public action in health, nutrition and all that saves life, but leaving the production of life to so-called natural forces yields rates of population growth seldom approached in countries now modernized.

(15) The preceding arguments are incomplete, for Asia is not a region without demographic transition. Japan is a developed country, with an advanced economy, high levels of living, low mortality, low fertility, and a rate of natural increase insufficient for replacement in the long run. Birth rates are declining in the countries on China's perimeter, possibly also in China itself. There are areas and groups with lowered or now declining fertility elsewhere. Modernization has occurred and is now occurring in parts of Asia.

If there were analyses of population and manpower and their associations in stability and in change, questions of policy could be approached incisively and realistically. But participants in this Seminar meet as precursors rather than architects of comprehensive and integrated policy. Their deliberation may give an impetus to the preparatory work that lead to the incisive policies that precede and sustain more effective action.

There are occasional periods in history when past and future cannot be ordered persistences, when deep change is essential to basic continuities. We live in such a period. An intense interaction among forces of change once quiescent, a continuation of trends once disparate on incompatible if not collision courses, an intensification of the manifold human and resources imbalances that are so ancient and so omnipresent as to seemnatural, an acceleration in the new technological complexes that generate new problems while solving old ones—these are co-existent forces in contemporary Asia. Simple projections of components from past to future cannot yield a model of the future. Basic changes are inherent in the future. In fact, they are now in process.

Perhaps the greatest hazard to Asian populations and the future of Asian societies today lies in the propensity to see and struggle with immediate crises rather than to alter the ongoing processes that underlie the crises. Nowhere is this more true than in population. At a given time, the numbers in the population are facts, alterable only slowly as the newly born move in varying proportions through childhood, youth, maturity and old age. Distribution is also fact; movements that yield swift urban growth alter massive rural populations only slowly and over substantial periods of time. In a deep sense, each generation inherits its own population problems while it creates or resolves those of following generations. Thus searches for enduring solutions to population problems are postponed as efforts are concentrated on current maladjustments.

If contemporary difficulties are largely products of the failures of the past generation to solve the problems of the numbers and the opportunities of its oncoming youth, the difficulties in the year 2000 will reflect the successes or failures of the generations now maturing in resolving the manifold problems of population and manpower in the 1970s, the 1980s and the 1990s. If this is so, the present generations of adults have the dual tasks of resolving those problems bequeathed to them by the failures of the past and minimizing those problems bequeathed by them to the future.

Growth: 1970 to 1985

The population of the earth was estimated as 3,600 million in 1970.[1] If death rates continue their down-

1 United Nations, Department of Economic and Social Affairs, Population Division, *Total population estimates for world, regions and countries, each year, 1950-1985* (ESA/P/WP.34), 16 October 1970, p. 24.

Population estimates for People's Republic of China, Democratic People's Republic of Korea and Democratic Republic of Viet-Nam are included in references to the Asian ECAFE region. For composition of region, see annex IV.

ward movements and fertility declines according to the medium projections of the United Nations, earth's population will be 4,900 million in 1985.

The population of the Asian part of the ECAFE region was estimated at 1,975 million in 1970. It is projected as 2,772 million in 1985. The increase of the fifteen years is 797 million. The Asian ECAFE region is the central place for earth's people. In 1970, excluding Japan, it included almost three-fourths of the less developed population of the earth. Asia is diverse today; there are many indications that diversities are increasing. Major regions are ethnic and cultural rather than simply geographic.

In 1970, the estimates of the United Nations indicate a population of less than 1,000 million for east Asia, and 1,100 million for south Asia in the ECAFE region. In 1985, east Asia's population is estimated as 1,200 million, while south Asia's is estimated as 1,600 million. In the years from 1970 to 1985, east Asia's increase is 251 million, south Asia's 522 million. Increase is 27.1 per cent for east Asia, 49.8 per cent for south Asia. Thus meaningful explorations of population and manpower dynamics in Asia require separate surveys of east and south Asia, with final assessments of the factors in location, culture, history and development that are yielding divergences and convergences in present and future changes.

East Asia

The total populations and the numbers of youth and adults in the productive ages are presented in table 1-A for east Asia and its major subregions.[2] The numbers below age 15 in 1985 will be determined by births and survival proportions between 1970 and 1985. All those who will be aged 15 and over in 1985 are now born. No future trends in fertility can influence their numbers. Death alone could diminish the actual numbers in the future substantially below the projected numbers. An increase of a quarter of a billion in a decade and a half cannot be altered appreciably by migration outside the region.

The People's Republic of China is Asia's major demographic enigma. Japan is a symbol of the Asian potential, perhaps an omen of the Asian future, now earth's third industrial power. The natural transition to a low fertility appropriate to a low mortality occurred with industrialization and urbanization, as it had earlier among European peoples. An increasingly educated, affluent, and urbanized population faces major problems of manpower deficiencies and an aging population structure. Proportions of the population in the productive ages are now high; ratios of the young and the aged to those in the productive ages are low. Numbers of women in the reproductive ages will be fewer in 1985 than in 1970. The questions of population policy are pro-natalist; they concern the stimulation of growth through raising fertility.

Economic growth, rising incomes, educational advances, changing roles of women, social mobilities, and vaulting aspirations characterize the Koreans, the Taiwanese and the Chinese of the city states of Hong Kong and Singapore. The manpower increases of the years from 1970 to 1985 will be major but they are heritages of the past. Natural transitions to lower fertility are being stimulated by governmental or quasi-governmental programmes to reduce rates of population growth through making knowledge and means of birth control available to the people. Fertility is declining, growth is slowing. Questions concern speed and terminus.

The countries of east Asia in population and manpower transitions are in or on the periphery of the northern Pacific developments. All countries have been involved in major wars; all have altered social structures, modernizing distribution patterns, and deep concerns if not present difficulties with disadvantaged minorities of colour, subculture, religion, or class. The moorings of ancient orders and the acceptances of traditional ways have been shaken if not broken in internal or international struggles.

For China mainland, the projections of the United Nations assume a decline in fertility beginning in 1955 and continuing until transition is completed. If this has been the course of change, birth cohorts whose survivors enter the productive ages in the years from 1970 to 1985 were influenced by the many social and economic factors that determined age at marriage and altered the separations of the sexes as well as the birth control programmes of the Government and the widening accessibility of increasingly effective birth control practices. China's problems of increasing manpower in the productive ages remain major. In the medium projection of the United Nations, numbers of men aged 15 to 64 increase more than one-third between 1970 and 1985. However, the dependency ratio declines almost 15 per cent over the period, the ratio of children to women almost 20 per cent.

South Asia

The population of south Asia was estimated at slightly over 1,100 million in 1970. It is projected as 1,600 million in 1985 (table 1-B). People in the productive ages numbered 563 million in 1970; they will number 858 million in 1985. The figure of 295 million as the manpower increase between 1970 and 1985 is not debatable as an order of magnitude. Increasing death rates associated with lethargic development, cataclysms of war, pandemic, famine, or ecological disaster could reduce the growth substantially. No future declines in fertility can influence it.

The manpower of south Asia is projected to increase more than 50 per cent between 1970 and 1985. Age structures remain heavily weighted with youth. Dependency ratios that were above 80 in each subregion in 1970 remain above 80 in 1985.

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2 United Nations, Population Division, World Population Prospects, 1965-1985, as Assessed in 1968 (Population Division Working Paper No. 30, December 1969), table 2, "Population by sex and broad age groups, by regions, 1965-1985, medium variant."

Table 1.

Population of the Asian ECAFE region by subregions, age structure and increase: 1970-1985

Year and Age Groups	Numbers (000)	Per cent	Numbers (000)	Per cent	Numbers (000)	Per cent	Numbers (000)	Per cent
A. East Asia	East Asia		Japan		China (Mainland)		Other	
1970, total	928,605	100.0	103,499	100.0	765,072	100.0	60,034	100.0
0-14	331,117	35.7	24,799	24.0	280,695	36.7	25,623	42.7
15-64	557,786	60.1	71,503	69.1	453,906	59.3	32,377	53.9
1985, total	1,179,977	100.0	121,346	100.0	972,570	100.0	86,061	100.0
0-14	373,515	31.7	29,087	24.0	312,697	32.2	31,731	36.9
15-64	744,130	63.1	81,076	66.8	612,299	63.0	50,755	59.0
Increase, 1970-1985 total	251,372	27.1	17,847	17.2	207,498	27.2	26,027	43.1
0-14	42,398	12.8	4,288	17.3	32,002	11.4	6,108	2.38
15-64	186,344	33.4	9,573	13.4	158,393	34.9	18,378	56.8
B. Southeast and Middle South Asia	Southeast and Middle South Asia		Southeast Asia		Middle South Asia			
1970, total	1,045,978	100.0	285,306	100.0	760,672	100.0		
0-14	452,211	43.2	125,555	44.0	326,656	42.9		
15-64	562,521	53.8	151,607	53.1	410,914	54.0		
1985, total	1,567,375	100.0	432,078	100.0	1,135,297	100.0		
0-14	656,600	41.9	181,916	42.1	474,684	41.8		
15-64	857,722	54.7	236,041	54.6	621,681	54.8		
Increase, 1970-1985 total	521,397	49.8	146,772	51.4	374,625	49.2		
0-14	204,389	45.2	56,361	44.9	148,028	45.3		
15-64	295,201	52.5	84,434	55.7	210,767	51.3		

Source : World Population Prospects . . ., table 2.

Note : For composition of subregions, please refer to annex IV.

Statements of the projected growth separately for men and for women may relate more directly to the economic, social and political future. The numbers of men in the working ages from 15 to 64 increase more than 50 per cent between 1970 and 1985. The numbers of women in the reproductive ages from 15 to 44 also increase more than 50 per cent in this period. Thus in south Asia there are serious questions of the congruity between advancing levels of living, realized aspirations for better lives, and the increasing manpower that now seems likely to add to the proportions of the marginal in rural areas and in cities.

Urbanization

Urbanization and industrialization were associated processes in the economic development and the demographic transitions in countries now modernized. The key human process was the transfer of increasing portions of rural population growth to urban areas. This was a transfer from agricultural to non-agricultural occupations. The essential carrier of transition was education. The essential social changes were altered roles for men and women, opportunities for children and widening horizons. There were increasing mobilities within cities and urbanizing regions that were increasingly economic and social as well as geographic. Ages at marriage advanced; the fertility of the married declined. Transitions to small families and low fertility seemed to be natural correlates of urbanization and industrialization, the changing roles of the sexes and the generations and awakened aspirations.

Replication of the historic urbanization is difficult in the demographic setting of contemporary Asia. Many of the links between urbanization and industrialization are frayed. The social changes of the urban milieu seem to be aspects of economic developments in urban areas rather than simply residence in larger agglomerations. There are increasing evidence of the persistence of rural reproductive levels in cities.

The United Nations has traced the past and projected the future paths of growth for places of 20,000 or more population and for areas outside such agglomerations.[3] For simplicity, the agglomerated populations will be referred to as urban, the lesser towns, the villages and the dispersed settlements as rural.

According to these estimates, some 82 per cent of the population of the Asian ECAFE region was rural in 1970; the projected trends suggest that 79 per cent will be rural in 1980. Even this relatively small change implies major migrations and rapid urban growth. In the decade 1970-1980, population increases are projected by about 22 per cent for the total and 42 per cent for the urban. But most of the population and most of the absolute increase are rural. While rural population will increase by about 20 per cent, this represents more than half of the total projected population increase.

Urbanization is more advanced in east than in south Asia today and the differences are projected as widening in the 1970s. Japan and the smaller countries in transition are mainly urban. In Japan, there is rural depopulation; in the developing countries, four-fifths of the decade increase occurs in urban areas. The population of China mainland has been estimated as 17 per cent urban in 1970, projected as 20 per cent urban in 1980. Two-fifths of the increase of the 1970s is allocated to urban areas, three-fifths to rural.

The critical problems in urbanization, as in manpower increase, are those in south Asia. Today, south Asia's 1.1 billion people include 176 million who are urban and 900 million who are rural. An increase of more than half in the urban population in the 1970s would raise the percentage urban from 16 to 19. Almost three-fourths of the total increase would be absorbed in rural areas.

Summary statement may be brief. Continuation of trends implies swift increases in the urban populations of the less developed Asian countries—but two-thirds of the increase of the 1970s will be rural. The percentage reaches 71 per cent in southeast Asia, 73 per cent in middle south Asia. If this occurs, the economic absorption of the increasing manpower will be mainly rural and agricultural.

The Labour Force

The present levels and types of labour force participation in Asia extend from the advanced modern patterns of Japan to the largely traditional patterns that persist in most of south Asia outside the great cities. The problems of increase and absorption in Japan and the modernizing countries on the China perimeter are those of skills, adaptabilities, training, and re-tooling (table 2). Women are moving into employment in modern sectors. Family institutions, the roles of women, and the relations of the generations are changing. Children are attending school to higher levels. In China mainland, transformations in social structures, education, and allocation practices bring increasing proportions of women into the labour force. But for China, mainland as for the other countries, the major questions of the present and the near future concern employment for the increasing numbers in the productive ages.

Today in most of the agricultural regions major proportions of the men reported as gainfully occupied or in the labour force are underemployed. The studies of the possible dynamics of the labour force in rural and urban areas during the next decade suggest severe

3 United Nations, Department of Economic and Social Affairs, *Growth of the World's Urban and Rural Populations, 1920-2000* (Population Studies No. 44. New York, 1969). (SOA/Ser. A/44).

4 Ypsilantis, J.N., "World and regional estimates and projections of labour force". In *Sectoral Aspects of Projections for the World Economy*, pp. 36-76. First Interregional Seminar on Long-term Economic Projections, Elsinore, Denmark, 14-27 August 1966, vol. III, *Discussion Papers*, United Nations, 1969, ST/TAO/Ser. C/105, (Vol. III). The population base for the labour force projections is the medium estimate in the series as of 1963. For a more detailed description of the method of labour force projection: *Op. cit.* "Projection of manpower supply", *Bulletin of the International Statistical Institute*, Proceedings of the 37th Session, 1969 (London), vol. 43, book 1, pp. 327-340.

Table 2.

Labour force and occupational structure, east Asia: 1970-1980

Variable and Area	Year	Total Labour Force	Selected Occupations				Economic Sectors	
			Pro-fessional	Clerical	Blue Collar	Farmers	Tradi-tional	Modern
Number (Millions)								
East Asia:	1970	435.9	9.6	14.0	74.0	281.3	326.0	109.9
	1980	508.4	16.6	22.7	103.0	292.9	350.5	157.9
Japan	1970	51.8	3.0	6.8	17.6	12.0	20.7	31.1
	1980	55.5	3.6	8.0	20.1	9.8	19.2	36.3
China Mainland	1970	363.9	6.0	6.4	52.7	257.4	290.8	73.1
	1980	425.6	12.0	13.5	77.3	268.1	312.8	112.8
Other	1970	20.2	0.6	0.8	3.7	11.9	14.5	5.7
	1980	27.3	1.0	1.2	5.6	15.0	18.5	8.8
Change (Millions)								
East Asia:		72.5	7.0	8.7	29.0	11.6	24.5	48.0
Japan		3.7	0.6	1.2	2.5	-2.2	-1.5	5.2
China Mainland		61.7	6.0	7.1	24.6	10.7	22.0	39.7
Other		7.1	0.4	0.4	1.9	3.1	4.0	3.1
Change (Percentage)								
East Asia:		16.6	72.9	62.1	39.2	4.1	7.5	43.7
Japan		7.1	20.0	17.6	14.2	81.7	-7.2	16.7
China Mainland		17.0	100.0	110.9	46.7	4.2	7.6	54.3
Other		35.1	66.7	50.0	51.4	26.0	27.6	54.4
Percentage Structure								
East Asia:	1970	100.0	2.2	3.2	17.0	64.5	74.8	25.2
	1980	100.0	3.3	4.5	20.2	57.6	68.9	31.0
Japan	1970	100.0	5.8	13.1	34.0	23.2	40.0	60.0
	1980	100.0	6.5	14.4	36.2	17.6	34.6	65.4
China Mainland	1970	100.0	1.6	1.8	14.5	70.7	79.9	20.1
	1980	100.0	2.8	3.0	18.2	63.0	73.5	26.5
Other	1970	100.0	3.0	4.0	18.3	58.9	7.8	28.2
	1980	100.0	3.7	4.4	20.5	54.9	67.8	32.2
Percentage of Change								
East Asia:		100.0	9.6	12.0	40.0	16.0	33.8	66.2
Japan		100.0	16.2	32.4	67.6	-59.5	-40.5	140.5
China Mainland		100.0	15.7	11.5	39.9	17.3	35.6	64.3
Other		100.0	5.6	5.6	26.8	43.6	56.3	43.7

Source: Scoville, James G., "The occupational structure of employment, 1960-1980". In United Nations, First Interregional Seminar on Long-term Economic Projections Elsinore, Denmark, 14-27 August 1966. *Sectoral Aspects of Projections for the World Economy*, vol. III, Discussion Papers (VI-XIII) (New York, United Nations, 1969, ST/TAO/Ser/C/105) table 7, pp. 98-99. The modern sector occupations are the professional, managerial, clerical, and blue collar. See Scoville, James G., *idem*, pp. 105-108, for definition and discussion.

difficulties in the absorption of the increasing manpower in agricultural employment in rural areas or in non-agricultural employment in urban areas. Some suggested resolutions involve major labour-intensive programmes in areas interstitial between the villages and the great cities.

The estimates of the International Labour Office suggest growth of 17 per cent in the labour force of east Asia in the 1970s, with increases extending from the 7 per cent of Japan to the 35 per cent of the developing countries of the continental perimeter. Almost half of the projected increases consist of women.

The labour force of southeast and middle Asia is estimated as 393 million in 1970, 485 million in 1980 (table 3). The absolute increase is 92 million, the relative increase almost one-fourth. Projected percentage increases are 28 in southeast Asia, 22 in middle south Asia. In each region, about three-fourths of the increase consists of men.

In the Asian countries apart from Japan and the modernizing countries of the China perimeter, most of the labour force is agricultural[5]. The percentage is 71 in mainland east Asia and 69 in middle south Asia. It is 64.5 for all east Asia and 66.8 for all southeast and middle Asia. The ILO projections for the 1970s imply major migrations of maturing youth from agricultural to other occupations. Agriculture absorbs less than one-fifth of the projected increase in the labour force of China mainland, two-fifths in that of south Asia. The dominance of agriculture is reduced somewhat during the 1970s but the base populations in agriculture are so great that erosion proceeds slowly. In 1980, the percentage of the labour force agricultural is projected as 63 in China, 58 in southeast Asia, and 63 in south Asia. The summary statement seems paradoxical. If the projections for the 1970s are consistent with the events of the decade, the less developed populations of Asia will remain mainly rural and agricultural but moret han half of the increases in the labour force will have been absorbed outside agriculture.

In the developing economy, professional, administrative, clerical, transportation and communication and blue collar occupations may be defined as the modern sector.[6] Farmers, sales people and service workers are in traditional occupations. In this allocation, some two-thirds of the increase in the labour force of east Asia in the 1970s/ occurs in the modern sector. The proportion for south Asia is almost half. Again the concentrations of manpower and the predominance of the traditional in 1970 preclude other than slow changes in the base populations, whatever the rates of change in the increments. In 1980, only 31 per cent of the labour force of east Asia, only 28 per cent that of south Asia, is projected as in modern occupations. Some seven in each ten workers remain in traditional occupations.

Rural Areas and Agricultural Populations

The focus in the assessment of the population and the manpower future of the less developed Asian countries is rural and agricultural. Rates of population increase are high; time is sparse. This could have been said in 1960. In 1970, there is a new factor that alters demographic, economic and social outlooks in ways not yet predictable. There are scientific and technical advances in food production and developing industrialization in Asian agriculture. Displacements of labourers, tenants and small owners are in process along with consolidations of holdings and more efficient operations. So also are increasing incomes in agriculture and widening differentials in the incomes of social-economic groups and regional populations.

The industrialization of agriculture, the integration of major sectors of the rural people into the monetary economy, and the correlated changes in social structure occur in the years from 1970 to 1985 when manpower increases more than a third in China and more than half in South Asia.

If the agricultural transformations proceed through expansions of holdings and the mechanization of productive and distributive processes, the resolution of the problems of food may generate severe problems of employment in rural areas and in cities.

Speedier reductions in birth rates and swifter urbanization are suggested as essential to changes in the social structure of the rural population and continuing technical progress in agricultural production.

Problems: Types, Intensities and Strategies

Statement of a problem of population and manpower in Asia and suggestions for a policy to resolve the problem would be at such a level of generality as to be irrelevant to operational planning and action. Asian diversities preclude the simplicity of unitary statements and resolutions.

In Japan, the population problems of the present and the coming decades are those of a pervasive family size insufficient for the maintenance of numbers in the long run, combined with an urbanization that threatens the quality of human living and the preservation of the environment. Higher education, science and technology are advancing, with widening generation gaps and deep searchings for new meanings among the youth maturing

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5 Scoville, James G, "The occupational structure of employment". In United Nations, *Sectoral Aspects*..... 77-109. The basic technique was regression analysis for each of the major occupational groups.

6 Food and Agriculture Organization of the United Nations, *Provisional Indicative World Plan for Agricultural Development* (Rome, 1970), vol. 1, pp. 1-327; vol. 2, pp. 331-672. vol. 3, *Summary and Main Conclusions*. See also: *A Strategy for Plenty: The Indicative World Plan for Agricultural Development* (World Food Problems No. 11, Rome, 1970), and *The State of Food and Agriculture*, 1969 (Rome, 1969).

Table 3.

Labour force and occupational structure, southeast and middle south Asia: 1970-1980

Variable and Area	Year	Total Labour Force	Selected Occupations				Economic Sectors	
			Pro-fessional	Clerical	Blue Collar	Farmers	Traditional	Modern
Number (Millions)								
Southeast and middle south Asia	1970	393.2	7.9	9.0	61.7	262.7	305.1	88.1
	1980	485.3	14.0	15.7	88.5	300.1	354.6	130.7
Southeast	1970	110.1	3.2	3.6	20.1	66.7	79.9	30.2
	1980	141.0	4.8	5.3	27.6	81.6	98.8	42.2
Middle south	1970	283.1	4.7	5.4	41.6	196.0	225.2	57.9
	1980	344.3	9.2	10.4	60.9	218.5	255.8	88.5
Change (Millions)								
Southeast and middle south Asia		92.1	6.1	6.7	26.8	37.4	49.5	42.6
Southeast		30.9	1.6	1.7	7.5	14.9	18.9	12.0
Middle south		61.2	4.5	5.0	19.3	22.5	30.6	30.6
Change (Percentage)								
Southeast and middle south Asia		23.4	77.2	74.4	43.4	14.2	16.2	48.4
Southeast		28.1	50.0	47.2	37.3	22.3	23.6	39.7
Middle south,		21.6	95.7	92.6	46.4	11.4	13.6	52.8
Percentage Structure								
Southeast and middle south Asia	1970	100.0	2.2	2.3	15.7	66.8	77.6	22.4
	1980	100.0	2.9	3.2	18.2	61.8	73.1	26.9
Southeast	1970	100.0	2.9	3.3	18.2	60.6	72.6	27.4
	1980	100.0	3.4	3.8	19.6	57.9	70.1	29.9
Middle south	1970	100.0	1.7	1.9	14.7	69.2	79.5	20.4
	1980	100.0	2.7	3.0	17.7	63.4	74.3	25.7
Percentage of Change								
Southeast and middle south Asia		100.0	6.6	7.3	29.1	40.6	53.7	46.3
Southeast		100.0	5.2	5.5	24.3	48.2	61.2	38.8
Middle south		100.0	7.3	8.2	31.5	36.7	50.0	50.0

Source: Scoville, *op. cit.*

in the affluent society. The problems of the rural areas are those of high physical productivity and human depopulation. The problems of the urban areas are those of manpower scarcity.

The countries with high and sustained rates of economic growth, advancing education, swift urbanization, increasingly delayed marriages and declining marital fertility are moving toward the resolution of the problems of underdevelopment and the achievement of those of advanced modernization. In Japan, the economic transformation occurred without a colonial interlude, the demographic transformation without government anti-natalist policies. Change and transition were natural in the same sense that earlier European transitions were natural. Taiwan, Korea, Hong Kong and Singapore had periods of colonial rule, and there are programmes to speed the decline in fertility and so shorten the period of rapid growth. These areas are few in numbers and their populations are small in Asian contexts. Each has a distinctive history and a non-repeatable complex of factors stimulating the modern developments.

A question of major relevance in worldwide demographic focus, is whether comprehensive transition to lower fertility is or is not in process in the People's Republic of China. There are goals, administrative organizations and programmes to extend health services and those services include contraception, induced abortion and sterilization as health and welfare measures and as essential to the development and the contributions of individuals to society and to the state. The reorientation of the family, the altered roles of women, the emphasis on delayed marriage, the increasing participation outside the family group—these are among the forces of the new order that are conducive to maximum change in the institutions, the historic sanctions, the aspirations and the motivations that once sustained the relations of the generations, the roles of women, and the reproductive mores of the traditional culture. Health, ideological, social and political policies combined with an ethic and a practice in the education, the labour force participation and the occupational placement of women may be almost a prototype for comprehensive population and manpower policy. This is speculative interpretation of a transition whose extent and speed are not known. If fertility is not declining in China, though, the reproductive mores are highly resistant to economic, political and social change.

The population and manpower problems of south Asia are also diverse, though most are classic in the coincidence of low productivity, low incomes, educational retardation, localism and traditionalism in the rural society, reduced mortality, ancient and now archaic reproductive levels, and high rates of population growth. Family planning programmes have been slow in diffusion and limited in impacts, though the possibilities of breakthroughs in the 1970s cannot be dismissed lightly. There is widespread unemployment and even wider underemployment. If there is continuity in declining mortality along with persistence in levels of fertility, the outlook for the years from 1985 to 2000 will be a repetition of 1970-1985. Men in the productive ages and women in the reproductive ages will again increase by more than half in the fifteen years from 1985 to 2000. If this is not to be so, declines in fertility in the 1970s and the early 1980s must be far more rapid than those now occurring, projected, or viewed as feasible in most of the countries. The documentation for this statement is summarized in table 1. The youth aged 0 to 14 in 1970 are the entrants to the productive ages in the years from 1970 to 1985. The youth aged 0 to 14 in 1985 are the entrants to the productive ages in the years from 1985 to 2000. The ratios of numbers in 1985 to those in 1970 are rough indicators of the increases in manpower in the years from 1985 to 2000.

If the declining fertility and the declining mortality assumed in the projections of the United Nations are true assessments of the next decade and a half, problems of increasing manpower will be approaching a terminus in the last years of the twentieth century in China and in the Chinese and related areas on the perimeter. They will be continuing, even intensified, in south Asia. Here, in the region as a whole and in each of its subregions, the entrants to the productive ages between 1985 and 2000 will be almost half again as numerous as those in the years from 1970 to 1985.

The neglect of the problems of reducing the population inflows while concentrating on the problems of those now alive is perhaps the greatest of the demographic hazards of the 1970s. It is possible, even probable, that the problems of the increasing cohorts of births, the increasing manpower, the insufficiencies of migrant outlets in cities, and the awesome pressures in rural areas are an inseparable complex. Educational opportunities that are equal for boys and girls, altered roles for women, employment structures for men that permit the formation of families with hopes for the future, social structures that equalize opportunities and ease mobilities, rising levels of living and aspirations for still further rises—these are the aspects of economic and social development. They are also conducive to the maximum acceptance of small family ideals, the strengthening of motivations to practice limitation effectively, and hence the speedy reduction of fertility and the rate of population growth. Population policies must be formulated in terms of the aspirations and ideals of the people. Planned parenthood becomes a natural component in, and an essential aspect of, the achievement of a modernizing and advancing life for families, communities, and peoples. Population itself becomes the focus of development efforts. No lesser goal is sufficient for the 1970s and the remaining decades of the century.

Tentative formulations of integrated population and manpower policies and recommendations as to development, adoption, and implementation are the task and the responsibility of this Seminar.

INFLUENCE OF CHANGES IN FERTILITY, MORTALITY AND MIGRATION ON AGE COMPOSITION AND MANPOWER*

Increasingly manpower is being recognized as a vital resource for the socio-economic development of a nation.[1] In the wake of rapidly expanding populations in many of the developing countries, however, the growth of manpower surpluses has been one of the most serious economic, social, as well as political, problems. The rate of addition to the volume of manpower seems to be higher than the generation of additional jobs, resulting in ever-increasing unemployment and underemployment. Here our aim is to provide an understanding of the mechanism through which the demographic or population variables help to regulate the manpower or labour supply.

Technically, any change occurring in the proportion of economically active population due to a change in the age composition may be labelled as a *direct effect* of the population variables, fertility, mortality and migration, on manpower. Such direct effects are relatively easy to measure. The influence of population variables on either the quality of manpower and/or on the probability of participation in economic activity will be referred to as *indirect effects*. These are usually difficult to measure. Some are discussed in the final part of this paper.

An example of the influence of age composition on labour activity is provided in table 1, which compares the crude male activity rates (i.e., the percentage of total male population in the labour force) and age standardized activity rates in Pakistan and its provinces with those of some other countries in the ECAFE region. Age standardized activity rates are usually computed in order to assess the relative levels of participation in labour activity independently of divergent age structures. Differences between age standardized and unstandardized activity rates would show the effects of variation in age structures. We have used the age distribution of the 1961 male population in Pakistan as the standard for computing age standardized activity rates.[2] The Pakistani crude activity rate is higher than the rates in the Philippines and Thailand, but lower than those of India and Japan. With standardization for age, however, the participation in economic activity for males in Pakistan is larger than that for any other country in table 1. This implies that the male crude activity rate in Pakistan would have been higher but for a comparatively unfavourable age structure and table 2 shows that the percentage of population in the active age span 15-59 years is low in Pakistan. As further clarification of this point, note that if Japan assumes the same age composition as in Pakistan, its male crude activity rate would decline by more than 11 percentage points from its present level of 58.5 percent.

In order to obtain a complete picture of the mechanism through which the demographic variables influence manpower supply, one should understand how they affect the intermediate variable, age composition. As a demographic principle, age structure is a direct function of fertility, mortality and migration. Fertility and mortality are regarded as more important in this respect as the external migration in most countries is not of significant magnitude. The age structure, in turn, influences the fertility and mortality levels and hence the rate of natural increase. Table 3 explains the interplay of fertility, mortality and age composition.

As shown, an increase in the fertility rate produces a "young population"; one that has a large percentage of persons under fifteen years.[3] Improvements in mortality produce a similar effect. But note that the changes in fertility produce more pronounced changes in the age composition than do those in mortality, making fertility the principle determinant of age composition.[4] However, manpower analysts should not completely undermine the importance of mortality.

Immigration, if motivated by the availability of economic opportunities, usually has the immediate effect of increasing the proportion of young adults in the population, and emigration reduces this proportion. However, as migration is a flow variable, one should look at the intensity and nature of migratory movements in the past few decades in order to determine the total

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* This is a revised version of the document prepared for the Seminar at the request of the ECAFE secretariat by Dr. Ghazi M. Farooq, the Pakistan Institute of Development Economics, in connexion with its consideration of agenda item 6. A slightly condensed version is presented in this report. The views expressed are those of the author and not necessarily those of the ECAFE secretariat, the United Nations or the Institute of Development Economics, Dacca.

1 For simplicity the definition of manpower used here is a restricted one. It is taken as a synonym for the *economically active population* or *labour force*, i.e., the number of workers available for employment. Also the terms *participation in economic or labour activity* or *activity rate* or *work participation* refer to the percentage of population in the labour force.

2 For the countries included in table 1, the ranking will not change (although the size and the differential will) if the population structure of some other country in the table is used as the standard instead of the Pakistani one.

3 The female stable populations of the "south" model life table of Coale and Demney are used here to show the ultimate implications of a fertility and mortality schedule.

4 United Nations, *The Aging of Populations and its Economic and Social Implications* (New York: Department of Economic and Social Affairs, 1956), p. 22.

Table 1.

Crude and age standardized male activity rates in Pakistan, and provinces and some selected countries in ECAFE region

Country	Census Date	Minimum Age Limit for Economic Enumeration	Crube Activity Rates	Age Standardized Activity Rates
Pakistan	1961	10	55.7	55.7
East Sector	1961	10	56.2	56.9
West Sector	1961	10	55.0	52.6
Thailand	1960	11	54.3	53.2
India	1961	0	57.1	53.0
Philippines	1960	10	46.5	48.9
Japan	1960	15	58.5	47.0

Source: Office of the Census Commissioner, Ministry of Home and Kashmir Affairs, *Population Census of Pakistan 1961*, Census Bulletin No. 5, table 3; United Nations, *Demographic Yearbook, 1964* (New York: Department of Economic and Social Affairs, 1965), table 8.

Table 2.

Composition by broad age groups of male population in some selected countries

Country	Percentage of Population		
	Under 15 Years	15-59 Years	60 Years and Over
Pakistan	44.0	49.6	6.4
Thailand	43.3	52.5	4.2
India	40.9	53.6	5.5
Philippines	47.4	48.4	4.2
Japan	31.2	60.6	8.2

Table 3.

Composition by broad age groups of "south" model female stable populations at different levels of expectation of life at birth (e_0^0) and gross reproduction rate (GRR) (mean age of fertility schedule, m = 29 years)

e_0^0 (in years)	GRR	Percentage of Female Population			Crude Rates (per 1000)	
		Under 15 Years	15-59 Years	60 Years and Over	Birth	Death
30	1.0	13.4	61.0	25.7	12.3	40.0
	2.0	27.2	61.4	11.5	29.8	33.4
	3.0	32.5	60.9	6.6	45.0	34.3
	4.0	44.3	51.5	4.2	57.5	36.6
40	1.0	15.1	60.6	24.2	12.6	31.1
	2.0	30.0	59.2	10.9	30.0	24.2
	3.0	40.1	53.9	6.0	44.1	24.1
	4.0	47.4	48.9	3.7	55.8	25.5
50	1.0	16.4	60.0	23.9	12.7	24.7
	2.0	32.0	57.7	10.3	29.5	17.4
	3.0	42.3	52.1	5.6	43.3	16.6
	4.0	50.0	47.1	3.4	54.4	17.2
60	1.0	17.4	58.4	24.4	12.7	19.7
	2.0	33.5	56.4	10.2	29.3	12.1
	3.0	44.0	50.7	5.4	42.6	10.7
	4.0	51.1	45.6	3.3	53.2	10.8
70	1.0	17.8	56.8	25.4	12.5	15.8
	2.0	34.5	55.1	10.5	28.9	7.9
	3.0	45.1	48.5	6.4	41.9	6.3
	4.0	52.3	44.5	3.2	52.2	5.9

Source: A. J. Coale and Paul Demeny, *Regional Model and Stable Populations* (Princeton: Princeton University Press, 1966), pp. 736-844.

Table 4.

Male crude activity rates: stable population, models with different levels of fertility, mortality, and age-specific male activity rates

	Expectation of Life at Birth	
	50 Years	70 Years
With average age-specific activity rates of agricultural countries.		
Gross reproduction rate = 3.0	55	52
Gross reproduction rate = 2.0	63	91
Gross reproduction rate = 1.0	76	74
With average age-specific activity rates of industrialized countries:		
Gross reproduction rate = 3.0	49	46
Gross reproduction rate = 2.0	57	54
Gross reproduction rate = 1.0	67	65

Source: United Nations, *The Aging of Population and its Economic and Socirl Significance*, table 34a.

impact on age structure. At the present time, the quantitative effect of international migration is not significant; internal migrations are more important and are at least partly responsible for the differences observed between the age structures of urban and rural populations.

It is important to note that the effects of variations in these demographic variables upon the dimensions of the labour force, as proceeded through their effects on the population age structure, are primarily influenced by the levels and trends of age-specific activity rates. The age-specific activity rates in agricultural countries are higher than those of industrialized countries, particularly in younger age groups and old age groups and hence partly compensate for unfavourable age structures in the former countries.[5] The relationships of these variables to labour force dimensions as represented by male crude activity rates are illustrated by means of the stable population models in table 4. As expected, the effect of fertility changes is quite pronounced. For example, with constant mortality and activity schedule, lowering the gross reproduction rate from 3.0 to 1.0 will increase male crude activity rate by 19 percentage points in industrialized countries and by 22 points in agricultural countries. An increase in the expectation of life from 50 to 70 years, with constant fertility and activity schedule, will result in a decline of 2 to 3 percentage points in the activity rate. The net effect of a simultaneous shift in the gross reproduction rate from 3.0 to 1.0, in expectation of life from 50 to 70 years and from the pattern of age-specific activity rates in agricultural countries to that of industrialized countries will be to raise the male crude activity rate by 10 points.

These comparisons, however, represent the *ultimate* effects of the stated changes in the three factors, as the stable population models represent the population age structures which would ultimately obtain in populations with fertility and mortality rates remaining constant at the stated levels. *Transitional* effects are also important, particularly of fertility changes — more important, actually, from practical points of view. These can be explored by making projections which start with the actual conditions of a country and allow the three factors to vary according to different combinations of assumptions. Of course, the relative importance of the effect of changing patterns of age-specific activity rates, compared with the effects of fertility and mortality changes will depend on how much change in the specific activity rates is assumed. If the rates drop from a very high to a much lower level, the resulting decrease in the relative size of the labour force may overbalance the contrary effect of a substantial decrease in fertility. An example can be seen in the illustrative projections for Brazil.[6]

As mentioned earlier, fertility and mortality trends and migratory movements may exert important influences on the quality of manpower and/or the probability of participation in economic activity itself-referred to here as *indirect effects*. For example, the fertility level may affect the level of female work participation, and vice versa. Such a cobweb type of relationship may be most prevalent in the middle adult age groups. If the family planning programmes so ambitiously being launched in many developing countries succeed in checking the birth rates, the likely effect would be an increased female work participation. But there will also be a reduction in the dependency load, which will release a large amount of funds otherwise spent on supporting the large dependent population, usually at subsistence levels in these countries. These funds could profitability be utilized for increasing education, nutrition and the general standard of living. So, besides an improvement in the labour force participation rates, the eventual effect of the fertility decline would be an increase in the quality of population and manpower.

Also, though changes in mortality level may not bring about very significant changes in the age structure, they can surely impart important indirect effects. The present trend in most of the developing countries is that of declining mortality. Unfortunately, planners, and sometimes even researchers in the field, fail to recognize the impact of increased longevity on the health, attitude, psychology, etc., of the labour force and the population. The likely effect is an improvement in the quality of manpower and an alternate benefit to socio-economic development.

Finally, migration can influence the propensity to participate in labour activity if either the migrants are characterized by higher work participation rates than the indigenous population in the same age group, and/or they change the attitude to work of the indigenous population.

It is quite apparent from this brief discussion that, although indirect effects are difficult to quantify, they are too important to be omitted from an analysis of relationships between population variables and manpower. A probe into the causal relationship between changes in the age composition and manpower supply should be followed by an adequate treatment of the indirect effects peculiar to the population under consideration.

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5 A shift from the pattern of age-specific activity rates in agricultural countries to that of industrialized countries, with constant fertility and mortality, would cause a decline of 6 to 9 percentage points in the male crude activity rate (see table 4).

6 This example is taken from, United Nations, *Methods of Analysing Census Data on Economic Activities of the Population* (New York, 1968), table 12.

TRENDS IN LABOUR FORCE PARTICIPATION BY AGE AND SEX IN RELATION TO EDUCATION AND SKILL*

The need for disaggregating the projections of labour force is perhaps obvious. For proper manpower planning, it seems necessary to know the educational and/or skill qualifications of the persons who will be in the job market so that the likely balance or imbalance between the demand and supply of labour of different categories in the years ahead can be assessed. Such an assessment would facilitate the planning of educational programmes, particularly in fields which require prolonged training. In some of the ECAFE countries with reported unemployment among the graduates of high schools and colleges or universities, the problem might sometimes be one of curbing excess supply through stimulating demand and/or regulating enrolments and thereby the outturn of persons with different qualifications.

For discussing trends in participation rates in relation to education it is necessary to consider two related but distinct issues, namely, differentials in participation rates by educational attainment or skill and the impact of growing educational enrolments on the labour force participation rates in relevant age groups. The second issue is comparatively straight-forward. The former relatively neglected subject is our main concern. It is discussed at some length because the available empirical information is inadequate for the inference of trends.

Available data

The United Nations recommendations for the 1970 population censuses included the tabulation of the "economically active population by occupation, sex, broad age group and level of education as a 'second priority' item with age groups of under 15, 15-19, 20-24, 25-44, 45-64, and 65 and over[1]. India prepared this table from the 1960 censuses without the cross classification by age in order to provide the most essential data on the relationship between education and occupation.[2] These tables permit the estimation of crude participation rates but not of age specific ones.

The present discussion therefore needs to be restricted to the information available for urban areas of India from some of the Rounds of the National Sample Survey undertaken between 1960-61 and 1966-67. This information can partly be supplemented by the special tables prepared from the 1961 census data for twelve cities (towns with a population of 100,000 and more) for the state of Maharashtra in western India.[3] The twelve cities include Greater Bombay and altogether account for a population of 6.7 million (about 8.5 per cent of the total urban population of India in 1961). The main advantage of these supplementary data is a somewhat more detailed classification of educational level and the possibility of comparing the situation in metropolitan Bombay with that in other cities of Maharashtra State.

Admittedly, the National Sample Survey data limited to four observations do not permit an inference about the time trend with any certainty. However the fact that the available data pertain to urban India alone does not appear to be a serious limitation because a majority of persons with an education beyond the high school level reside in towns and cities.[4]

Differentials in participation rates by education

The empirical data referred to above suggest some substantial differences according to educational attainment in the participation rates of females but not those for males except in the young ages of 15-29 or 60 and above. Let us consider the latter first. The differentials in ages 15-29 (in fact, 10-29) result from the delayed entry into the labour force by those who go to school and become literate and continue further education. The range of differences naturally narrows down with an increase in age. At ages above 50, and particularly above 60, the status composition of the employed persons seems to be the major factor underlying lower participation rates of the matriculates and graduates than of non-matriculate literates or illiterates. The proportion of salaried employees subject to retirement rules naturally tends to be much higher among persons educated up to or beyond high school than among others.

As noted above, the female participation rates in urban India show substantial differences by education. In all age groups above 20, the rates form a J-shaped curve according to education, with the labour force

* This paper was prepared by Pravin M. Visaria, Department of Economics, University of Bombay, Bombay, as a resources person to the Seminar. A slightly condensed version is presented in this *report*. The views expressed are those of the author and not necessarily those of the Economic Commission for Asia and the Far East or of the United Nations.

1 United Nations, *Principles and Recommendations for the 1970 Population Censuses*, (New York, 1967, Series M, No. 44), pp. 122-123.

2 In addition, for urban India, the 1961 Census has also provided the occupational distribution of non-cultivating workers by sex, broad age groups and education. (See Census of India, 1961, India, Part II-B (iii), *General Economic Tables*, table B-VI).

3 The tables were compiled under a special collaborative project undertaken in 1966 by the Office of the Registrar General and the University of Bombay.

4 Of the 6.95 million men educated up to matriculation or more, enumerated by the 1961 Census, only 2.29 million or 32.87 per cent were in rural areas. Of the 1.28 million females with similar educational qualification, only 0.22 million or 17.36 per cent were in rural areas. (See Census of India, 1961, India, Part II C/(i), *Social and Cultural Tables*, table C-III.)

participation of matriculate and graduate women reported to be much higher than of the illiterate; the rates for non-matriculate literate females are substantially below the levels indicated for the other three educational groups.[5] In comparison with the rates for males, however, the female rates are all substantially lower.

The 1961 Census data for twelve cities of Maharashtra are fully consistent with the National Sample Survey data. These data refer to only the working or employed members of the labour force and indicate that the proportion of workers among women holding diplomas was significantly higher than among graduates. However, within the ranks of graduate women, those holding degrees in technical subjects (most of them in teaching and medicine and some in engineering) participated in work significantly more frequently than their sisters who had studied non-technical subjects. Thus the female participation rates according to educational attainment will depend also on the fields selected for study by women. (This point is supported also by the crude participation rates of women with different technical skills, reflected in their degrees, in urban India as a whole. Although the crude rates by educational level are affected partly by the age-composition of the relevant population, it is unlikely to be a major factor for degree-holders.)

Greater Bombay and other cities

A comparison of the 1961 Census data for Greater Bombay with those for the other eleven cities of Maharashtra shows that among women classified as illiterates, literates without educational level or educated up to primary or junior basic level, the rates of work participation were lower in Bombay than in other cities. For women with matriculation diplomas and degrees, however, the worker rates were higher in Greater Bombay than in other cities. It is debatable whether this difference in the situation in Bombay and other cities is due primarily to availability of jobs of various types or attitudes towards work by women. However, the worker rates for males show differentials comparable of those for women and the availability of jobs considered appropriate for specified educational attainments seems an important factor affecting worker rates. Insofar as the occupational composition of employment differs between large and small cities, the pattern of urbanization (and industrialization) will influence participation rates according to education.

Trend in National Sample Survey participation rates

The National Sample Survey data on participation rates in urban India are subject to random and sampling errors. More importantly, the urban frame of the National Sample Survey was revised after the 18th Round to conform to the 1961 Census list of towns.[6] Therefore, the data are not strictly comparable. However, they suggest a noteworthy decline in the participation rates of males of all educational levels in ages 15-24.[7] The participation rates for illiterate females decline in all ages while those for graduate women show erratic fluctuations. The rates for non-graduate matriculate women decline in ages 15-39 and those for non-matriculate literate women in ages 30 and over.

While some of these apparent changes might be spurious, they provide some indication of the likely factors at work, which deserve attention. During the 1960s, the enrolments in Indian universities (and colleges) have increased rapidly, from 1.03 million in 1960-61 to 2.22 million in 1967-68 or by 115 per cent. Over the four-year period 1960-61 to 1963-64 the number of students aged 14 and above, enrolled in secondary schools (middle and high schools), had increased by about 41 per cent from 4.28 to 6.03 million[8] and the rate of increase has continued over the later years as well. This rapid expansion of educational system has naturally led to a delay in the entry into the labour force by persons in the age group 15-24.[9]

Interestingly, the participation rates at ages 50 and above for persons with different educational attainment have not shown any decline despite an increase in the proportion of wage and salary employment in urban India. With the decline in mortality and improvement in health conditions and availability of medical care, the age of retirement in the public sector has been raised from 55 to 58. Quite probably, the proportion of those seeking and obtaining gainful employment after retirement from their earlier jobs has also increased.

The trend in participation rates of females is more difficult to analyse. Yet, the lower participation in economic activity by the illiterate women is consistent with the recent evidence of very slow growth or a

5 According to the 1960 Census of Japan, the labour force participation rate of females aged 15 years and over who had completed senior high school (old middle school) was 49.2 per cent as compared with 53.8 per cent for graduates of junior colleges (old higher school) and universities and 55.5 per cent for those who had studied up to elementary school or junior high school. (The latter group also included women who had never attended school and who formed 3.3 per cent of all women aged 15 and over.) Participation rates for males in the same categories were 95.0, 96.0 and 90.8 per cent, respectively. See *Population of Japan*, 1960, *Summary of the Results of 1960 Population Census of Japan*, Bureau of Statistics, Office of the Prime Minister, Tokyo, 1963, pp. 506-511.

6 The 803 former towns (declassified in 1961, with an estimated population of 4.3 million) probably had a fair degree of agricultural activities and therefore, relatively higher level of labour force participation.

7 Among non-matriculate literate males, decline in participation rate is evident in the age group 20-24 but not in 15-19.

8 Institute of Applied Manpower Research, *Fact Book on Manpower*, Part II, *Education and Training*, New Delhi, 1969, pp. 60-61, 108.

9 During the recession in the Indian economy during 1966-69, the employment opportunities in the organized sector have increased very slowly, further inducing a postponement of entry into the job market, Some of the affected persons register with Employment Exchanges while continuing education.

decline in the number of women workers in the private sector industry.[10] Industries like textiles, which used to employ women in fair numbers, have not been expanding significantly. Moreover, the labour legislation seeking to provide female workers with various benefits, such as maternity leave, and restricting the employment of women to the day shift has probably led the employers to prefer male employees. However, in the public sector and white-collar urban employment in the private sector, which employ educated women, the number of female employees has continued to increase. Also, between 1 January 1964 and 31 December 1968, the number of female job-seekers registered with Employment Exchanges increased by about 81 per cent, substantially faster than male job-seekers whose number increased by only 14 per cent. For matriculates and higher educated job-seekers, the corresponding figures of increase were 72 and 116 per cent for males and females.[11] The faster rise in the number of female work-seekers leads one to suspect that the labour force participation of urban educated women might be rising; but several factors might explain the situation and a definite inference is not possible.[12] It remains to be seen whether the more recent Rounds of the National Sample Survey will report any changes in the participation rates of women with different educational qualifications.

Prospects

The prospective changes in participation rates of women with different educational qualifications will be governed by complex interaction between various factors influencing demand for and supply of their labour. The relative cost of employing male and female labour, itself affected by the easy availability of male members of the growing labour force, might well be the major factor influencing demand. The natural comparative advantage of women for certain activities such as nursing, teaching, assembly activities in the electronics industry, etc., will, of course, favour their employment. However, the composition of available job opportunities is also changing and scope for self-employment progressively tends to be restricted. Even the educated women are said to be wanted for positions carrying low wage or salary which their male counterparts do not accept or leave as soon as something better becomes available. As for supply, the increasing education of urban girls beyond high school is accompanied by a rise in their age at marriage as well as a change in the attitudes regarding their employment. Inflationary pressures that raise the cost of living accentuate the need for daughters/wives to supplement their parents'/husbands' income. Yet, for married women, the move towards nuclear residence and the increasing difficulty of finding domestic help (at least in metropolitan areas like Bombay) hamper the combination of earning with household management and child-rearing. While the college-educated women who regulate their family size can overcome these obstacles to labour force participation relatively easily, the illiterate and non-matriculate literate women are forced to restrict their participation in economic activity.[13] This situation is unlikely to change significantly in the foreseeable future. However, women with specific skills, i.e., technical training, and probably even those with non-technical education beyond high school will at least maintain and more likely raise their labour force participation rates in the years ahead. Given the accepted role of men as breadwinners for their families, the participation rates of males with differential educational attainments are unlikely to change materially except insofar as difficult employment situation induces prolongation of formal education. However, the continuing rapid growth of enrolments in colleges and universities would increase the outturn of persons with formal degrees, whose correspondence to skills will depend on the quality of education. Unless the new job opportunities become available in adequate numbers (and match the preferences or expectations of the rising number of matriculates and graduates), the discontent and frustration will mount steadily and challenge the standards of efficiency and productivity as well as the social order. Herein lies a major challenge for educational and manpower planning.

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10 India, Ministry of Labour, D.G.E.T., *Employment Review*, 1968-69 pp. 81-85

11 P. Visaria, "Employment and unemployment in India: A review of selected statistics", appendix II to the *Report of the Committee of Experts on Unemployment Estimates*, Planning Commission, Government of India, New Delhi, 1970, pp. 122-124.

12 The public sector agencies are the major user of Employment Exchanges. They do not discriminate against women in their recruitment decisions.

13 The fall in the proportion of illiterates would presumably exceed the increase in the percentage of matriculates and graduates so that the proportion of non-matriculate literate women would probably tend to rise significantly. Unless the participation rates of women in this group rise significantly, the net effect of changing educational composition on the participation rates of females will be negative.

Table 1.

Age-specific labour force participation rates of MALES by educational attainment in urban India, according to specified Rounds of the National Sample Survey

Educational Attainment / Round	Ages							All Ages	Sample Persons
	15-19	20-24	25-29	30-39	40-49	50-59	60 and Above		
All persons									
16	47.87	85.44	97.33	98.18	97.47	91.22	51.90	52.30	40,858
17	44.21	83.89	96.90	98.62	97.17	88.88	52.24	51.21	98,811
18	41.71	81.08	95.92	97.97	97.30	88.06	47.87	50.27	54,023
21	39.19	79.07	96.57	98.43	97.39	89.73	51.91	50.56	232,258
Illiterate									
16	88.53	96.67	98.26	97.97	97.46	92.80	54.83	41.48	16,076
17	88.28	95.78	97.33	98.60	96.36	89.37	55.82	40.53	38,174
18	85.82	94.71	97.19	97.55	96.76	88.76	52.42	39.45	17,108
21	84.78	95.01	97.87	97.92	96.61	90.05	53.73	39.07	88,042
Literate but below matric									
16	42.68	92.76	98.32	98.13	97.24	91.42	51.94	58.13	19,868
17	36.90	89.15	98.51	98.66	97.31	89.43	51.96	56.24	47,131
18	36.45	88.80	96.94	98.20	97.41	88.76	46.28	54.88	29,450
21	43.86	88.69	97.96	98.62	94.52	89.66	52.99	54.32	111,780
Matric but below graduate									
16	15.91	59.35	93.95	98.62	98.44	84.33	36.27	68.56	3,881
17	19.98	61.95	94.23	98.15	98.68	83.12	34.84	71.07	9,428
18	15.29	57.32	93.90	98.18	97.93	81.03	35.07	68.72	5,634
21	13.36	55.21	93.66	98.59	98.62	87.76	39.21	68.13	24,969
Graduate and above									
16	26.44	62.71	90.93	99.23	98.59	87.74	37.92	83.81	958
17	12.55	67.44	81.62	99.46	99.01	88.99	49.54	75.87	3,582
18	13.34	51.81	86.52	97.74	99.33	87.40	42.21	81.69	1,693
21	21.76	57.68	90.65	98.71	99.05	83.19	47.20	85.69	7,369

Note: The four National Sample Survey Rounds were undertaken during the period specified below.

Round	Survey Period	Reference Period	NSS Report No.
16	July-December 1960	One week	103 (p. 23)
17	September 1961-July 1962	One week	127 (p. 25)
18	February 1963-January 1964	One week	154 (Draft) (p. 17)
21	July 1966-June 1967	One week	209 (Draft) (p. 45)

Table 2.

Age-specific labour force participation rates of FEMALES by educational attainment in urban India, according to specified Rounds of the National Sample Survey

Educational Attainment Round	Age							All Ages	Sample Persons
	15-19	20-2	25-29	30-39	40-49	50-59	60 and Above		
All persons									
16	14.60	19.52	21.10	25.96	27.46	26.13	12.63	13.55	35,493
17	11.53	15.87	19.65	21.12	22.36	25.58	9.30	10.95	86,112
18	10.37	14.24	16.82	20.70	23.04	20.64	9.56	10.45	46,380
21	11.17	15.08	17.61	21.20	23.61	21.01	10.54	10.85	203,229
Illiterate									
16	24.10	24.52	27.58	32.56	34.30	29.67	13.73	16.71	18,614
17	20.22	21.08	25.96	26.63	28.23	25.51	10.59	13.65	52,342
18	15.54	18.06	21.01	27.61	27.98	24.13	10.31	12.99	26,296
21	19.92	18.84	22.66	27.57	29.39	25.08	11.83	13.53	120,018
Literate but below matric									
16	7.06	8.91	8.15	11.15	10.96	11.40	5.48	6.08	12,903
17	4.52	5.17	8.03	9.66	9.79	6.03	1.73	4.57	29,648
18	6.58	6.28	7.55	7.81	8.41	7.62	4.20	4.51	18,057
21	7.42	8.15	8.57	10.03	10.04	8.04	3.89	5.21	73,178
Matric but below graduate									
16	9.20	33.21	32.57	33.77	23.36	16.15	—	23.52	3,584
17	8.06	22.68	26.47	25.07	20.59	14.52	5.41	18.48	2,768
18	9.60	21.60	21.72	19.56	36.73	31.07	43.80	17.92	1,589
21	8.70	21.37	20.32	21.48	23.61	16.61	15.36	16.91	8,274
Graduate and above									
16	2.72	25.54	32.31	50.60	38.70	21.14	24.90	33.21	326
17	3.00	24.26	37.03	41.19	17.36	7.14	24.15	19.51	1,090
18	7.52	34.84	37.53	45.32	37.98	42.86	51.36	36.21	312
21	5.75	26.27	38.36	41.16	41.01	37.61	23.87	32.34	1,708

Note : The four National Sample Survey Rounds were undertaken during the period specified below.

Round	Survey Period	Reference Period	NSS Report No.
16	July-December 1960	One week	103 (p. 23)
17	September 1961-July 1962	One week	127 (p. 25)
18	February 1963-January 1964	One week	164 (Draft) (p. 17)
21	July 1966-June 1967	One week	209 (Draft) (p. 45)

Table 3.

Gross years of active life by sex and educational attainment for urban India, according to specified rounds of the National Sample Survey

Education Attainment per Round	Males			Females		
	Ages			Ages		
	15-59	20-59	25-59	15-59	20-59	25-59
All Persons						
16	40.2	37.8	33.6	10.7	10.0	9.0
17	39.7	37.5	33.3	8.9	8.3	7.5
18	39.3	37.2	33.1	8.5	8.0	7.3
21	39.3	37.3	33.4	8.8	8.2	7.5
Illiterate						
16	43.0	38.6	33.7	13.5	12.3	11.0
17	42.5	38.1	33.3	11.4	10.4	9.3
18	41.7	37.9	33.2	10.7	9.9	9.0
21	42.3	38.1	33.4	11.3	10.3	9.3
Literate but below matric						
16	40.4	38.2	33.6	4.6	4.2	3.8
17	39.8	37.9	33.5	3.4	3.2	3.0
18	39.6	37.7	33.3	3.4	3.1	2.8
21	39.8	37.6	33.2	4.0	3.6	3.2
Matric but below graduate						
16	36.6	35.8	32.8	11.1	10.6	9.0
17	36.8	35.8	32.7	8.9	8.5	7.3
18	36.0	35.3	32.4	11.4	10.9	9.8
21	36.6	35.9	33.2	8.7	8.3	7.2
Graduate and above						
16	37.6	36.2	33.1	14.1	13.9	12.7
17	36.8	36.2	32.8	9.8	9.6	8.4
18	36.0	35.4	32.8	16.6	16.2	14.5
21	36.6	35.5	32.6	15.5	15.2	13.9

Table 4.

Crude worker and labour force participation rates by sex and educational attainment in rural and urban India, 1961 census

Education Attainment	Worker Rates				Labour Force Participation Rates			
	Urban India		Rural India		Urban India		Rural India	
	Males	Females	Males	Females	Males	Females	Males	Females
1. All persons	52.40	11.09	58.22	31.42	54.11	11.25	58.50	31.45
2. Illiterate	43.41	13.74	56.33	32.86	44.27	14.60	56.41	32.87
3. Literate without educational level	58.37	4.63	63.86	15.83	60.00	4.73	64.20	15.87
4. Primary or junior basic	53.71	4.67	59.10	15.70	56.37	4.70	60.19	15.86
5. Matriculation	67.55	17.31	69.57[a]	29.68[a]	71.50	19.73	75.22[a]	89.96[a]
6. Technical diploma not equal to degree	80.62	62.46			83.05	66.35		
7. Non-technical diploma not equal to degree	63.77	24.42			68.81	27.34		
8. University degree or post-graduate degree other than technical degree	77.92	28.34			80.39	30.62		
9. Technical degree or diploma equal to degree or post-graduate degree	87.19	71.30			88.39	74.22		
a) Engineering	87.39	43.77			88.68	47.17		
b) Medicine	87.41	77.68			88.29	79.19		
c) Agriculture	79.71	50.94			80.62	50.94		
d) Veterinary & dairying	81.32	58.82			81.89	58.82		
e) Technology	88.84	50.00			89.74	50.00		
f) Teaching	92.39	76.66			92.80	78.94		
g) Other	83.14	41.80			85.35	49.29		

Note: The educational characteristics of unemployed persons ages less than 15 years were not tabulated. Therefore, they are excluded from the calculations of participation rates shown above. However, their number was only 19,510 (572 females) in urban India and 33,759 (5,647 females) in rural India.

a The figures refer to persons with matriculation and higher education.

Table 5.

Worker population ratios (workers per 1,000 population) by age and educational attainment for males in twelve cities of Maharashtra State, 1961 census

Age	All Persons	Educational Attainment							
		Illiterate	Literate without Educational Level	Primary or Junior Basic	Matriculation or Higher Secondary	Technical & Non-Technical Diploma not Equal to Degree	University Degree or Post-Graduate other than Technical degree	Technical Degree or Diploma Equal to Degree or Post-Graduate Degree	All Graduates
All ages	572	467	587	614	718	882	855	855	855
15 and over	821	893	886	756	718	882	855	855	855
5-9	2	3	1	1	—	—	—	—	—
10-14	73	310	57	27	122	—	—	—	—
15-19	402	806	631	273	162	260	261	179	221
20-24	785	901	894	809	571	759	599	565	584
25-29	936	937	946	939	928	947	892	895	893
30-34	961	951	962	961	976	984	971	981	975
35-44	962	949	968	965	981	986	983	985	983
45-59	897	892	905	895	886	933	916	936	924
60 and over	522	582	567	488	331	421	425	539	463

Table 6.

Worker population ratios (workers per 1,000 population) by age and educational attainment for females in twelve cities of Maharashtra State, 1961 census

Age	All Persons	Educational Attainment							
		Illiterate	Literate without Educational Level	Primary or Junior Basic	Matriculation or Higher Secondary	Technical & Non-Technical Diploma not Equal to Degree	University Degree or Post-Graduate other than Technical Degree	Technical Degree or Diploma Equal to Degree or Post-Graduate Degree	All Graduates
All ages	104	127	42	50	221	716	360	666	452
15 and over	164	214	75	67	221	716	360	666	452
5-9	2	3	—	1	—	—	—	—	—
10-14	36	127	17	7	17	—	—	—	—
15-19	95	192	80	34	80	412	79	197	115
20-24	148	171	72	73	239	684	298	517	350
25-29	159	183	73	74	290	756	408	668	479
30-34	183	228	84	83	261	747	403	718	506
35-44	221	282	92	97	253	810	392	793	544
45-59	205	260	67	83	239	743	401	796	580
60 and over	100	119	33	41	104	216	191	367	263

Table 7.

Worker population ratios (workers per 1,000 population) by age and educational attainment for males in greater bombay, 1961 census

Age	All Persons	Educational Attainment							
		Illiterate	Literate without Educational Level	Primary or Junior Basic	Matriculation or Higher Secondary	Technical & Non-Technical Diploma not Equal to Degree	University Degree or Post-Graduate other than Technical Degree	Technical Degree or Diploma Equal to Degree or Post-Graduate Degree	All Graduates
All ages	617	533	626	633	768	901	879	868	875
15 and over	841	906	888	768	768	901	879	868	875
5-9	2	—	1	1	—	—	—	—	—
10-14	72	327	58	19	200	—	—	—	—
15-19	426	800	614	272	208	227	348	238	295
20-24	811	900	891	813	649	740	673	602	640
25-29	941	941	947	940	942	952	910	906	908
30-34	964	956	964	964	980	988	978	980	979
35-44	965	956	964	967	983	985	986	984	985
45-59	903	898	908	901	894	952	924	940	930
60 and over	520	595	562	472	348	487	444	594	492

Table 8.

Worker population ratios (workers per 1,000 population) by age and educational attainment for females in greater Bombay, 1961 census

Age	All Persons	Educational Attainment							All Graduates
		Illiterate	Literate without Educational Level	Primary or Junior Basic	Matriculation or Higher Secondary	Technical & Non-Technical Diploma not Equal to Degree	University Degree or Post-Graduate other than Technical Degree	Technical Degree or Diploma Equal to Degree or Post-Graduate Degree	
All ages	88	100	37	46	237	678	387	660	466
15 and over	137	169	64	63	237	679	387	660	466
5-9	1	3	—	1	—	—	—		—
10-14	27	107	16	4	23	—	—	—	—
15-19	78	154	77	32	89	364	100	260	150
20-24	128	126	61	73	282	687	323	529	371
25-29	134	135	59	70	308	722	443	670	502
30-34	161	176	69	76	272	675	431	703	515
35-44	186	233	77	89	253	758	405	755	529
45-59	162	224	58	76	219	674	403	793	574
60 and over	74	94	27	31	94	145	203	442	292

Table 9.

Worker population ratios (workers per 1,000 population) by age and educational attainment for males in eleven cities of maharashtra state excluding greater Bombay, 1961 census

Age	All Persons	Educational Attainment							
		Illiterate	Literate without Educational Level	Primary or Junior Basic	Matriculation or Higher Secondary	Technical & Non-Technical Diploma not Equal to Degree	University Degree or Post-Graduate other than Technical Degree	Technical Degree or Diploma Equal to Degree or Post-Graduate Degree	All Graduates
All ages	490	350	493	586	622	854	801	825	810
15 and over	779	866	877	736	622	854	801	825	810
5-9	2	2	1	1	—	—	—	—	—
10-14	76	288	57	37	60	—	—	—	—
15-19	361	819	679	274	102	295	102	71	87
20-24	724	905	904	801	437	781	450	477	461
25-29	923	924	940	937	897	939	847	869	856
30-34	953	937	956	957	966	976	951	982	963
35-44	955	931	957	962	977	988	976	987	980
45-59	887	881	897	888	867	904	898	927	910
60 and over	525	569	575	507	296	358	389	447	409

Table 10.

Worker population ratios (workers per 1,000 population) by age and educational attainment for females in eleven cities of Maharashtra State excluding greater Bombay, 1961 census

Age	All Persons	Educational Attainment							
		Illiterate	Literate without Educational Level	Primary or Junior Basic	Matriculation or Higher Secondary	Technical & Non-Technical Diploma not Equal to Degree	University Degree or Post-Graduate other than Technical Degree	Technical Degree or Diploma Equal to Degree or Post-Graduate Degree	All Graduates
All ages	125	157	50	55	184	769	268	683	408
15 and over	201	262	101	73	185	769	268	683	408
5-9	2	4	—	1	—	—	—	—	—
10-14	49	145	20	12	10	—	—	—	—
15-19	116	233	85	37	66	453	33	—	35
20-24	172	232	95	73	209	679	217	478	281
25-29	196	248	105	82	245	806	281	660	397
30-34	232	289	122	95	234	855	301	757	475
35-44	275	333	130	111	255	887	343	892	591
45-59	251	294	91	95	319	831	394	804	599
60 and over	128	139	48	64	158	327	154	229	189

Table 11.

Gross years of working life by sex and educational attainment, for cities of Maharashtra state, 1961 census

Educational Attainment	Males			Females		
	Ages			Ages		
	15-59	20-59	25-59	15-59	20-59	25-59
Twelve Cities						
1. All persons	38.5	36.5	32.6	8.2	7.7	7.0
2. Illiterate	40.8	37.3	32.3	10.6	9.6	8.8
3. Literate without educational level	40.4	37.3	32.8	3.5	3.1	2.7
4. Primary or junior basic	38.0	36.6	32.6	3.5	3.4	3.0
5. Matriculation or higher secondary	36.3	35.5	32.6	10.5	10.1	8.9
6. Technical and non-technical diploma not equal to degree	38.6	37.3	33.5	32.2	30.2	26.8
7. University degree or post-graduate Degree other than technical degree	37.2	35.9	32.9	15.9	15.5	14.0
8. Technical degree or diploma equal to degree or post-graduate degree	37.0	36.1	33.3	30.4	29.4	26.8
9. All graduates (7 and 8 together)	37.1	36.0	33.0	21.4	20.8	19.1
Eleven Cities (excluding Greater Bombay)						
1. All persons	37.7	35.9	32.2	10.1	9.5	8.7
2. Illiterate	40.5	36.4	31.8	12.7	11.6	10.4
3. Literate without educational level	40.4	37.0	32.5	4.7	4.3	3.8
4. Primary or junior basic,	37.8	36.4	32.4	4.0	3.8	3.4
5. Matriculation or higher secondary	34.8	34.3	32.1	11.1	10.8	9.7
6. Technical and non-technical diploma not equal to degree	38.4	36.9	33.0	35.3	33.0	29.6
7. University degree or post-graduate degree other than technical degree	35.0	34.5	32.2	13.5	13.3	12.2
8. Technical degree or diploma equal to degree or post-graduate degree	35.8	35.4	33.0	30.5	30.5	28.1
9. All graduates (7 and 8 together)	35.3	34.8	32.5	20.8	20.7	19.3
Greater Bombay						
1. All persons	38.9	36.8	32.7	6.8	6.4	5.8
2. Illiterate	41.0	37.0	32.5	8.6	7.9	7.2
3. Literate without educational level	40.0	37.3	32.8	3.0	2.6	2.3
4. Primary or junior basic	38.1	36.8	32.7	3.3	3.1	2.8
5. Matriculation or higher secondary	37.1	36.1	32.9	10.4	10.0	8.6
6. Technical and non-technical diploma not equal to degree	38.7	37.5	33.8	29.9	28.1	24.7
7. University degree or post-graduate degree other than technical degree	38.3	36.5	33.2	16.6	16.1	14.5
8. Technical degree or diploma equal to degree or post-graduate degree	37.6	36.4	33.4	30.3	29.0	26.3
9. All graduates (7 and 8 together)	37.9	36.4	33.2	21.6	20.8	19.0

Table 12.

Labour force participation rates for population aged 10 years and over by sex and educational attainment in rural, urban and all areas of Philippines, household survey, October 1965

Educational Attainment	All Areas	Rural Areas	Urban Areas
Males			
All	71.3	73.7	65.9
No grade completed[a]	82.5	84.6	71.6
Elementary school	70.5	73.7	60.3
High school	65.2	62.9	67.2
College	76.2	73.7	77.1
Females			
All	35.3	34.2	37.5
No grade completed[a]	43.9	46.1	35.1
Elementary school	32.9	32.1	35.0
High school	29.5	24.7	33.5
College	52.9	48.9	55.7

Source: Philippines, Bureau of the Census & Statistics. The B C S Survey of Households. Bulletin Series No. 19. *Labour Force including Educational Attainment Data*. October 1965, pp. 2, 38-39.

Note: Persons shown as having specified educational attainment had completed varying number of grades (years of education) in the appropriate institutions.

a Including persons who did not report the grade completed.

DIRECT INFLUENCE OF FERTILITY, MORTALITY AND MIGRATION ON LABOUR FORCE PARTICIPATION RATES*

Variation in fertility, mortality and migration are likely to have a pronounced effect on crude activity rate, or labour force participation rates (the ratio of persons in the labour force to total population), on account of the accompanying changes in age composition. This paper will consider the influence of these demographic variables on age-sex specific activity rates. The net change in labour force will, of course, depend on the interaction of the variation in specific activity rates and population age structure. [1]

Concepts and Definitions

For a meaningful analysis of factors affecting activity rates based on intertemporal or interspatial comparisons, it is necessary to take due account of the conceptual framework used to distinguish between persons in the labour force and the rest of the population. According to internationally recommended standards, the labour force comprises "all persons of either sex who furnish the supply of labour available for the production of economic goods and services", including employers, the self-employed, unpaid family workers, employees, as well as the unemployed. Defined thus, the concept appears quite simple; yet difficulty arises when an attempt is made to translate it in to operational terms. Comparability is, however, impaired by the choice of different reference periods, changes in criteria of economic activity and variations in the minimum quantum of work which qualifies a person for inclusion in the labour force. These issues are particularly complicated in less developed economies where a large part of economic activity is seasonal and takes place in family enterprises in which males and females above a certain age are expected to share responsibility for work in varying degrees depending upon both custom and economic circumstances. As already recognized, "the most acute problem in labour force classification is the identification of unpaid family workers" [2] who appear in both industrialized and less developed economies, though to a much greater extent in the latter where agriculture is the predominant source of livelihood. Most unpaid family workers are women, who combine household chores with economic activity, and while international bodies have recommended that they must have put in a minimum of one-third of the normal work period to be included in the labour force, an element of judgement becomes unavoidable if the "normal work period" itself varies from one region to another and from season to season within a given region. Enumeration of the unemployed in countries where job opportunities are relatively limited also presents difficulties. Labour force participation rates may be depressed if some of the unemployed do not report themselves as seeking work because they believe no jobs are available. [3] Comparability problems seem almost insuperable when we observe that a given conceptual framework used in the same country and under the same authority yields different results on account of the biases of the investigators or the respondents. [4] Greater reliance may, however, be placed on the results obtained from scientifically designed sample surveys repeated at least once in every working season, placed in charge of trained personnel, and based on actual observation over the reference period rather than vague replies by the subjects concerned. Such surveys will be a good supplement to and not a substitute for a census, which will always be indispensible because of its comprehensive coverage.

Labour Force Participation Rates of Males

Children 10-14

Very few children under 10 are economically active. Activity rates for ages 10-14 are ordinarily computed by relating the labour force under age 14 to population in the age group 10-14. Worker-population ratios in this age group are virtually negligible in industrialized countries but show a wide range in the less developed countries where agriculture, livestock and household industry can engage children for jobs that are not highly exacting. International comparisons are vitiated by variations in the minimum age below which children are not counted as workers as well as in the minimum work time which qualifies them for enumeration in labour force. Between state comparisons in India in 1961 show an inverse association between activity rates for children and levels of economic development as indicated by *per capita* income, percentage labour force occupied in non-agriculture (excluding household industry) and school enrolment. [5]

Under the static conditions of a subsistence economy, reduction in mortality unaccompanied by a per-

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1 For techniques of analysing interaction, see United Nations Population Studies No.43, *Methods of Analysing Census Data on Economic Activities of the Population.*

2 United Nations, *Demographic Aspects of Manpower*, 1962.

3 See the results of surveys in the Philippines, India and Ceylon quoted in United Nations, *Demographic Aspects of Manpower.*

4 M.L. Gupta, "Patterns of economic activity in the Philippines and some methodological issues involved" *International Labour Review*, April 1970, for the disparity between the 1961 census and survey results in the Philippines. Also J.N. Sinha: "Comparability of 1961 and 1951 census economic data", *Artha-Vijnana*, Gokhale Institute of Economic and Politics, 1964.

5 J.N. Sinha: *India's Working Force, 1901-1961*, 1961 Census Monograph (in press).

ceptible decline in fertility would increase family size, reduce *per capita* income and perhaps force more children to keep away from schools and make whatever productive contribution they could for family sustenance. In a dynamic structure, however, two factors work strongly in the opposite direction, i.e. increase in school enrolment and industrialization of the modern variety. Most governments which have succeeded in reducing mortality through improvement of public health and medical facilities are also motivated by welfare considerations to expand school facilities for children. However, with an accelerated increase in the number of children surviving to age 6 and beyond, the pace is slowed down in proportionate terms, as is evident from the postponement of the target of compulsory education up to age 14 in India from 1966 to 1991. Further, the heavy drop-out rates at the primary stages in backward areas in general and villages in particular suggest that children fail to avail themselves of even the relatively limited opportunities for schooling provided by the State. This highlights the need for adjustment of school timing and vacations to fit the schedule of agricultural operations. A more effective solution obviously lies in birth reduction which would raise family income in *per capita* terms and make possible better child care and feeding, improved schooling and more free time for games and recreation, all of which would raise the quality of human stock that is ultimately available for operating the economy. It may be mentioned in passing that the legal ban on employment of children in factories and other organized establishments reduces the scope for their participation in economic activity in urban areas, but it is doubtful if the economic position of large families in the backward strata permits investment of all their free time in schooling and other activities helpful to their development.

Young adults 15-24

The population explosion of the early 1950s will be followed by a labour force explosion in the 1970s on account of the rising tide in ages 15 and over. Most developing economies may be threatened with a growing gap between new job opportunities and additions to labour force. Where the labour market is organized, it may largely manifest itself in the rising number of unemployed. In the household sector there may be widespread underemployment, visible and otherwise. The forces operating on the ratio of labour force (employed + unemployed) to population in young age groups may, however, work in opposite directions. Economic pressure in a subsistence set-up, which forces several children to do what little they can to add to family income, would compel nearly universal participation of males in economic activity by the time they are 15+, even though at sharply declining levels of productivity. A minority who are fortunate enough to have completed education up to the matriculation or higher secondary level pitch their expectations high in terms of job status and rates of remuneration. If these do not materialize on account of competition from graduates in an already congested labour market, they begin to crowd the portals of colleges and universities, resulting in relative over-expansion of higher education, often at the cost of primary education, as in India.[6] This may delay entry into the labour force and depress labour force participation rates in the age group 15-19 and also marginally in the group 20-24 without much improvement in quality of the labour force since the average standards of higher education are likely to be diluted in the process of accelerated expansion. Vocationalization of secondary education, occupational guidance and job-oriented planning may be considered as some of the policy measures for raising activity rates as well as restoring balance in the educational system.

Males in working age groups 24+

There is nearly universal participation among adult males in all societies. That relative decline in job opportunities creates more unemployment is an obvious truism; whether it also increases *non-availability* for work needs closer scrutiny so that the element due to conceptual changes is sorted out. The contribution of "disability" *per se* to non-participation in gainful work is more pertinent in the present context. Endemic diseases such as malaria reduce seasonal, if not all the year round, activity rates while a virulent epidemic such as influenza pulled down the over-all participation rate in India in 1921.[7] Even for deaths due to tuberculosis, gastroenteritis, etc, which are still not uncommon, it must be noted that for every death from a certain disease, there must be many more suffering from it and therefore disabled for temporary periods, if not for the whole year. While the gains in working life expectancy accruing from mortality decline have been worked out for several countries, gains in labour supply per member due to reduction of diseases have received inadequate attention so far, probably because we do not have sufficient data on incidence of morbidity by age.

Old males

With mortality decline, more persons will survive to old ages. Whether more or less of them will continue in the labour force will depend upon economic and social circumstances. Data on their participation rates available for several industrialized countries since 1910 show a persistent decline; those for less developed countries since the 1950s show a similar trend. In India only three-fifths of urban males aged 60+ were in the labour force as against four-fifths of the rural.[8] Clearly, opportunities for gainful work are limited for old persons outside family and single-worker enterprises in general and agriculture in particular. Also voluntary withdrawal is possible in societies which provide retirement benefits. Rural-urban movement accompanied by occupational shifts and organizational changes as well as extension of social security benefits for the old are likely to pull

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6 M. Blaug, R. Layard and M. Woodhall, *Census of Graduate Unemployment in India*, Allen Lane: the Penguin Press, 1969.

7 J.N. Sinha, *India's Working Force* (in press).

8 J.N. Sinha, *op. cit.*

down participation rates of the old in the future. However, in skill-scarce situations men may continue on their jobs beyond the superannuation age. Thus, in India 6 per cent of graduates in professional and technical occupations are 60+ as against only 0.8 per cent of graduate clerical workers.

Labour Force Participation Rates for Females

Activity rates for females are extremely difficult to analyse because variation in conceptual framework, cultural attitudes, demographic characteristics and nature of economic organization interact to produce a range as wide as 4 to 50 per cent for the countries covered by the United Nations report on *Demographic Aspects of Manpower.*[9] Exclusion of unpaid family workers cuts down the range by almost one-half, but this is not entirely legitimate since they make a significant contribution to total output in several societies. Interspatial and intertemporal differences in female participation in gainful work may *in fact* be very large considering that cultural sanctions differ from one country to the other and, within a given culture, the propensity of women to be in the labour force may change with levels of fertility and mortality as well as their economic status and opportunities for employment that suit their aptitudes and inclinations.

From a study relating to less industrialized countries, certain propositions may be hazarded concerning female participation in the labour force:[10]

1. Where participation rates are initially high, women are generally confined to agriculture, household industry and allied activities which are largely organized on a family basis and can be conveniently combined with child-bearing and household functions. Thus in India, agriculture and household industry combined account for about 90 per cent of all female workers. In urban areas, apart from household industry, activities which engage substantial numbers are petty trade, construction and domestic services.

2. Where urbanization is accompanied by rapid growth of trade, services and *light* manufacturing industries, activity rates may rise, provided there is no prejudice or discrimination against employment of women. Notable illustrations in south and east Asia are the Philippines and Thailand. Several other countries may be sharing the same experience. Cultural inhibitions, however, seem to persist even among urban people in countries with Moslem influence such as Pakistan, though there may be some exceptions.

3. Where non-working status is a mark of social respectability and also women are engaged in low-paid jobs, economic development is likely to alter the work-leisure preference against the former. This is illustrated by the Indian experience where the activity rates in the metropolitan cities of Bombay, Calcutta, Madras and Delhi record a long-term declining trend that persisted even in the decade 1951-1961 when there was a perceptible increase in prosperity.[11]

4. Education is the most potent factor that alters not only social attitudes but also the employability of women. To take one illustration, the rapid increase in female education in the Philippines has brought the proportion of literate and educated among the two sexes very close to one another and accelerated expansion of the tertiary sector has contributed to an urban activity rate which is close to the rural.[12] In India, female participation rate in urban areas is one-third of the rural, and that of urban graduates nearly equals the latter and of those with technical degrees is more than twice as high.[13] In Pakistan, the number of female teachers rose eightfold between 1951 and 1961.

An important factor affecting activity rates of women is their marital status. Available data indicate that the rates are highest for single women and lowest for the married, with those for the widowed and divorced lying in between. While postponement of the marriage age would raise the proportion of single women, it remains to be verified empirically how far its effects on participation rates are modified by increase in school and college enrolment, social prejudices and competition with males in the overcrowded labour markets of some of the less developed economies. Increase in survival probabilities is likely to reduce the incidence of widowhood and therefore depress, though marginally, the average level of female participation in economic activity.

It is generally expected that mortality decline without a corresponding change in fertility will increase family size and responsibilities of women and reduce their activity rate. There are, however, bits of evidence suggesting that with more children surviving, younger ones can be left to the care of the older, releasing more of the mother's time for gainful work, particularly in agriculture. Documentation of the relationship of female actual rates and size of family exists mostly for industrialized countries.[14]

Unfortunately, evidence on the relationship between fertility and economic activity rates from less developed economies is both scanty and inconsistent.

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9 op. cit.

10 Boserup, E., *Women's Role in Economic Development* (George Allen and Unwin, London, 1970)

11 J.N. Sinha: *op. cit.*

12 M.L. Gupta: *op. cit.*

13 J.N. Sinha: *India's Working Force*, also "Dynamics of Female Participation in Economic Activity", World Population Conference Belgrade, 1965.

14 United Nations, *Demographic Aspects of Manpower*, 1962. R. Freedman, P.K. Whelpton and A.A. Campbell, *Family Planning, Sterility and Population Growth*, McGraw Hill, New York, 1959. M.K. Ilyina: "The Participation of Women in the Economic Activities in the Soviet Union", World Population Conference, Belgrade 1965.

Where the dominant activity consists of agriculture and handicraft, both organized on a family basis, women economically active at home seem to be no less fertile than women not economically active. Sovani and Dandekar found no evidence that occupation of the wife was associated with fertility in the rural and urban areas of Nasik and Kolaba in India. The United Nations Mysore study brings out negative relationship, but Drivers' study of fertility in central India showed that women employees were more fertile than those not working for pay. Murray Gendell concludes that "these bits of evidence, with their limitations of scope and methodology, do not provide a secure basis for ascertaining the nature of relationships between economic activity and maternal responsibility in India."[15] While more data are need to throw light on this subject, there is already some evidence that educated women in urban areas report both higher activity rates (referred to above) and smaller families.[16] If any causality is to be sought one may surmise that both fertility reduction and higher participation in economic activity are co-effects of education, particularly that beyond the matriculation stage. It is often suggested that female employment in an organized sector which is incompatible with a large family should be encouraged to induce fertility decline. All the same it may be considered whether it is not desirable to reduce incompatibility in the case of women with higher education (who are motivated to family limitation anyway) through institutionalized care of children of the Soviet type so that their skills are more fully utilized by the economy.

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15 Murray Gendell, *op. cit.*

16 Mercedes B. Conception: "The effect of current social and economic changes in the developing countries on differential fertility", World Population Conference, Belgrade 1965.

POPULATION GROWTH AND CHANGING STRUCTURE OF ECONOMIC ACTIVITY*

Structural Changes Involved in Economic Development

1. Modern economic development requires a redistribution of the labour force among fields of employment to meet the needs of changing technology and organization of production and the changing composition of demand for products. Development may be retarded by conditions which hamper the necessary redistribution of the labour force as well as by those which interfere with gains in productivity within the various fields. The rapid growth of population in developing countries is often named as a culprit on the second count and may be guilty also on the first.

2. This redistribution involves progressive expansion of the share of the non-agricultural sector in total employment and changes in the industry, occupation, and status structure of employment with the non-agricultural sector.[1] Among industries which typically increase their relative share in non-agricultural employment as economic development progresses are manufacturing of metal and metal products, machinery and transportation equipment; finance; and community, business and recreational services. More "traditional" industries, such as the textile and apparel manufacturing retail trade and some of the personal services, decrease in relative if not absolute numbers of workers. The proportions of employees in the labour force of non-agricultural industries tend to increase at the expense of self-employed and unpaid family workers. Occupational groups, like metal workers, electricians, appliance repairmen, automobile mechanics and stenographers, grow, while more "traditional" occupations, such as those of spinners, weavers, tailors, shoemakers, barbers and street vendors, decrease in proportion to the non-agricultural total. On the whole, the trend is in the direction of upgrading the quality of employment; i.e., increasing relative numbers of workers in types of jobs which afford relatively high earnings and which call for relatively well-trained and educated personnel.

3. Although the directions and the pace of such changes may vary in different stages of the development process, and although they may not follow the same patterns in different countries undergoing economic development, the invariable result in the long run is a radical transformation of the structure of economic activities. This is not fully reflected in the industry, occupation, and status distributions of the labour force, for the character of activities within many categories of these classifications is also transformed. There is a world of difference, for example, between traditional subsistence agriculture and the mechanized, commercialized, specialized operation of a modern dairy or poultry farm. Likewise between the traditional handloom weaving establishment and the modern textile mill, there is not much in common but that both produce cloth. In developing countries where traditional and modern segments co-exist in various industries and occupations, their changing shares of employment are an important aspect of the redistribution of manpower required for economic development.

4. Both agriculture and the fields of relatively low-quality employment in the non-agricultural sector are reservoirs of labour supply from which expanding fields of higher-quality employment may draw as economic development progresses.[2] At the same time, part of the outflow of workers from agriculture may go to replenish such reservoirs in the non-agricultural sector, and so their relative shares in the total labour force may increase in the early stages of economic development, although they diminish in proportion to the growing total of non-agricultural employment. Examples are found at present in such fields as retail trade and some of the personal service industries and occupations in some developing countries.

Processes of Structural Change

5. The redistribution of the labour force among fields of economic activity is ordinarily brought about mainly by occupational mobility, which should be understood in the present context as including movement between industries and status groups as well as occupations.[3] Two kinds of occupational mobility are distinguished— intergenerational and intragenerational and both are important in the processes of changing employment structure. Intergenerational mobility is the movement of sons and daughters into fields of employment different from those of their parents, while intragenerational mobility is the movement of individuals

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* This paper was prepared by John D. Durand, Population Studies Centre, University of Pennsylvania, as a consultant to the Economic Commission for Asia and the Far East. A slightly condensed version is presented in this report. The views expressed are those of the author and not necessarily those of the Economic Commission for Asia and the Far East.

1 See "Manpower demography of Asian and Far Eastern countries", POP/IPMP/5, chapter IV.

2 See the analysis of changes in industry distribution of employment, Puerto Rico, 1950-1960, in J.D. Durand and K.C. Holden, *Methods for Analysing Components of Change in Size and Structure of the Labour Force* (University of Pennsylvania, Population Studies Centre, Analytical and Technical Reports, No. 8, Philadelphia, 1969).

3 On concepts and methods of analysing occupational mobility, with reference to the United States, see P.M. Blau and O.D. Duncan, *The American Occupational Structure* (New York, John Wiley & Sons, 1967); also A.J. Jaffe and R.O. Carleton, *Occupational Mobility in the United States, 1930-1960* (New York, King's Crown Press, 1954). Most studies of occupational mobility have been concerned mainly or exclusively with males, but the mobility of female workers is also important.

from one field to another during their working lives. The former is reflected by differences in industry, occupation and status distributions of successive cohorts entering the labour force, while the latter shows up in changing distributions of the same cohort as enumerated in successive censuses at different ages in the cohort life-cycle.

6. Not all intragenerational mobility contributes to changes in the structure of economic activities over time. Some shifting of occupation, industry, and status occurs normally in the life-cycle of cohorts even when the structure is unchanging. An example in the frame of the "traditional" society is that of a small entrepreneur's son who begins his occupational career as an unpaid helper in the family enterprise, possibly moves when he grows older to a wage-earning job elsewhere, and eventually inherits the direction of the family enterprise when his father retires. Also in modern industrial societies, young people entering the labour market are employed initially in disproportionate numbers in certain relatively low-paid occupations and industries from which they graduate when they grow older and gain more experience. It is the difference between the intragenerational occupational mobility of each cohort and that of the next which contributes to structural change.

7. Occupational mobility is ordinarily completed for the most part in early adult ages. For example, in the United States during the decade of the 1940s, estimated percentages of males in the labour force who shifted from one major occupational group to another were 21 per cent in the cohorts aged 15-19 and 20-24 at the beginning of the decade, 16 per cent in the cohort aged 25-29, and progressively lower in older cohorts, dropping to 1 per cent in the cohort which aged from 60-64 to 70-74 during the decade.[4] This tendency of a cohort's distribution among fields of activity to become frozen in middle age is one of the factors of inertia which may hamper quick adjustment of labour force structure to the needs of economic development.

8. In addition to occupational mobility, migration and differences in natural increase rates of occupation, industry, and status groups may contribute to changes in the structure of economic activities. In the present circumstances of most developing countries, international migration is important in this connexion mainly as it affects the development of high-level technical and professional manpower. Immigration may be a means of accelerating the growth in supply of such personnel, while "brain-drain" emigration may retard this growth appreciably in some cases. The importance of internal migration in the processes of industry, occupation, and status redistribution lies mainly in its close connexion with occupational mobility. The movement from agricultural to non-agricultural employment takes place mostly in conjunction with rural-urban migration and movements between industry, occupation, and status groups in the non-agricultural sector often involve migration from one urban area to another. So the factors which make workers reluctant or eager to migrate have a bearing upon the rates of intergenerational and intragenerational occupational mobility.

9. The rate of natural increase of the labour force (i.e., the increment which would result from natural increase of the working-age population without any migration, occupational mobility, or change in age-specific rates of labour force entry and retirement) is commonly higher in the agricultural than in the non-agricultural sector.[5] Thus the relative share of the agricultural sector in the total would tend to grow in the long run if the natural increase differential were not offset by intergenerational and intragenerational occupational mobility. Similar differences in natural increase related to fertility and mortality differentials may exist between industry, occupation, and status groups in the non-agricultural sector. At any point in time, though, the natural increase rates of such groups may be strongly affected by their present age composition as it has been molded by previous intergenerational and intragenerational occupational mobility. Such repercussions of occupational mobility upon natural increase tend to reinforce the effects of the former upon trends in the structure of economic activities. Industry, occupation, and status groups which have recently been gaining by occupational mobility tend to have relatively large numbers of young workers, hence low rates of attrition by retirement and death, and relatively high natural increase rates. Conversely, groups which have lost by mobility tend to be composed to a greater extent of middle-aged and elderly workers and so tend to have lower or negative natural increase rates. The inertia inherent in the "top-heavy" age structure of the latter groups carries a threat of structural unemployment or underemployment as the relative demand for labour in their fields diminishes.

Effects of the Rate of Growth and Age Structure of the Total Labour Force

10. How may the processes of labour force redistribution among fields of economic activity be affected by the rate of increase in the total labour force? One must ask at the same time how these processes are affected by the age structure of the labour force, which is closely linked with its rate of increase. To simplify the discussion of these questions, they are considered in what follows with reference only to the increase in the relative share of the non-agricultural sector in the total labour force. The conclusions will be equally applicable to the redistribution among fields of employment within the non-agricultural (and also the agricultural) sector.

11. If the growth of the non-agricultural share were limited only by the factors of inertia which inhibit occupational mobility — in other words, if no economic limitations upon the capacity for expansion in non-agricultural industries came into play, so that they could

4 Jaffe and Carleton, *op. cit.*, table 9, p.37.

5 See "Manpower demography in countries of Asia and the Far East", POP/IPMP/5, chapter V.

absorb whatever number of workers would be prepared to transfer out of agriculture—then the speed of increase in non-agriculture's proportionate share in the labour force would vary directly with the rate of growth in the total labour force. It would be so because the faster the labour force grows, the larger is the proportion of the total made up of younger cohorts, in the ages of greatest occupational (as well as spatial) mobility. Moreover, with the labour force growing at any given rate, the higher the level of fertility (and hence also of mortality), the more youthful the age structure will be, and so the greater will be the rate of occupational mobility in the labour force as a whole. Thus a high rate of growth and especially a high birth rate make for flexibility in the labour force structure, which would seem to facilitate the redistribution among fields of employment required for economic development.[6]

12. The practical advantage of such flexibility in labour supply is doubtful, though, if the demand is rigid. In the typical economic circumstances of to-day's developing countries, the capacity to absorb a growing labour force in the non-agricultural sector is severely limited by shortage of capital, poverty of domestic markets, and competitive handicaps in export trade. If the growth of non-agricultural employment is determined by these economic limiting factors and employment in agriculture is simply a residual, then it is plain arithmetic that the faster the total labour force grows, the slower is the increase in non-agriculture's proportionate share in the total.

13. Dovring has pointed out that the rate of increase (or decrease) in the percentage of labour force employed in the non-agricultural sector is equal to the difference between the rates of increase in the total labour force and in non-agricultural employment.[7] For example, if the total labour force increases at 3 per cent annually and non-agricultural employment at 4 per cent, the percentage of labour force in non-agriculture will rise by 1 per cent each year—from 10 to 10.1 per cent, 20 to 20.2 per cent, and so forth. If the rate of labour force growth is reduced from 3 to 2 per cent and non-agricultural employment continues to grow at 4 per cent, the speed of transition to a predominantly non-agricultural employment structure will be doubled. Dovring noted also that the rate of growth in non-agricultural employment required to keep the absolute number of agricultural labour force at a constant level depends not only on the growth rate of the total labour force but also on the percentage shares of agriculture and non-agriculture in the total. For example, with the total labour force growing at 1.5 per cent annually and non-agricultural industries employing one-fourth of the total, non-agricultural employment must increase at 6 per cent annually to keep the agricultural labour force at a constant number; but a 2 per cent annual increase in non-agriculture is enough to serve this purpose when the share of non-agricultural in the total rises to three-fourths.

14. Jaffe and Froomkin have pushed the analysis along this line a step farther to take account of the increasing trend of labour productivity in non-agricultural industries, which means that non-agricultural production must grow at a higher rate than non-agricultural employment. For instance, with the total labour force increasing at 3 per cent annually and the non-agricultural sector employing 70 per cent of the total, non-agricultural production would have to increase at about 4.1 per cent annually to keep the agricultural labour force constant with constant labour productivity in non-agriculture, at 5.1 per cent with an annual increase of 1 per cent in productivity, 6.2 per cent with a 2 per cent increase in productivity, and so forth.[8]

15. The conclusion suggested is that some retardation of progress in upgrading the structure of economic activities is likely to be one of the penalties of a high birth rate and rapid growth of population, in the circumstances of most developing countries at present. However, this cannot be considered as a general rule applicable to all countries, or at all stages in any country's economic development. The effects of varying population growth rates and age structure upon the processes of change in employment structure depend, on the one hand, upon the economic conditions which limit expansion of labour demand in various fields, and on the other hand, upon the conditions which restrict occupational mobility on the supply side. Differential rates of natural increase of labour force in different industry, occupation, and status groups may also be important factors. A fairly complex analytical model representing the interactions of these factors is required to specify the effects to be expected in the circumstances of any country.

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6 Likewise, rapid growth of population and a youthful age structure facilitate quick replacement of an ill-educated and traditionally minded labour force by one which is better educated and more amenable to new ideas and new methods of production — provided that these demographic conditions do not result in less education being given to the cohorts of school-age population than they would receive if the population growth rate were more moderated and the ratio of the school-age cohorts to the cohorts in working ages were less burdensome. See H. Leibenstein, "The impact of population growth on 'non-economic' determinants of economic growth", in United Nations, *World Population Conference*, 1965, vol. IV (Sales No. 66.XIII.8).

7 F. Dovring, "The share of agriculture in a growing population", *Monthly Bulletin of Agricultural Economics and Statistics*, August/September 1969.

8 A.J. Jaffe and J.N. Froomkin, "Economic development and jobs — a comparison of Japan and Panama, 1950 to 1960", *Estadistica, Journal of the Inter-American Statistical Institute*, September 1966.

MANPOWER DEMOGRAPHY OF COUNTRIES IN ASIA AND THE FAR EAST*

Introduction

1. This paper is concerned with some principal aspects of the demography, of manpower in countries of Asia and the Far East, including dimensions of the labour force, its deployment in fields of economic activity, and processes of its growth and structural changes.[1] A regional view of basic measures derived from the statistics of postwar population censuses of countries in the region is presented, and factors underlying the variations are considered with special regard for relationships with economic development. Attention is given to problems of measurement, major shortcomings of data, and principal questions needing study especially in connexion with problems of policy and planning for economic development.[2]

2. Limitations of time and material for preparation of the paper have made it necessary to omit some important aspects and to touch only briefly on a number of questions that are central in the field of study to which the paper relates. Most important, the measures of employment, unemployment and underemployment, and studies of these dimensions as they relate to problems of economic and demographic policy and planning have had to be left out of consideration. It is a noteworthy and deplorable fact that the poor state of development of basic measures of the extent of utilization of manpower resources in various countries of the region would in any event preclude a broad comparative analysis such as is presented here with regard to the rates of participation in the labour force and features of employment structure.

3. The demography of manpower is a field of research that has not been much cultivated in this region. Published works on the subject make up a small fraction of the literature on population as well as economic problems. Monographs on the labour force of Asian and Far Eastern countries can be counted on the fingers of one hand.[3] Chapters dealing with labour force characteristics are found in a few works on the demography of countries in the region.[4] Relevant articles in demographic and economic journals, governmental reports, and so on are not numerous. The attention given to studies in this field has not been commensurate with the importance of the problems of development and utilization of human resources to which such studies are relevant. Policy-makers and planners of economic, social, and demographic programmes are handicapped by lack of knowledge of basic questions in this field. In the manpower projections, which occupy a central place in the statistical apparatus of economic planning, realism depends on knowledge of the ways in which growth and structural changes of the labour force are affected by demographic, economic, and other factors. Such knowledge is the basis for assessing the expected impact upon manpower development of planned actions in economic and social spheres, including population policy measures, and the repercussions of manpower changes on production, consumption, investment needs, and the like. The relevance of studies in this field to population policy questions deserves special mention since many of those who write and speak about these questions do not seem to recognize the inadequacy of present knowledge of the interrelations between demographic and economic changes. Some of the kinds of studies with which this paper is concerned can make substantial contributions to the development of knowledge of these matters.

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* This background paper was prepared by Mr. John D. Durand, professor at the Population Studies Centre, University of Pennsylvania, serving as consultant to ECAFE. The views expressed are those of the author and not necessarily those of ECAFE. The author has drawn upon material compiled at the Centre, for a world-wide study of labour force characteristics and changes in the postwar period, under his direction and that of Mrs. Ann R. Miller and with the support of a grant from the United States National Science Foundation. Some of the material presented here will be incorporated in a forthcoming publication of results of this study.

1 These and several other aspects of manpower demography are treated more generally with reference to developing countries in various regions of the world in "Demographic analysis of manpower development with particular reference to developing countries", prepared by Denis F. Johnston as a background paper for the United Nations Interregional Seminar on Demographic Aspects of Manpower, Moscow, 31 August-11 September 1970 (ESA/P/SDAM/CP.2).

2 Details of relevant demographic and statistical methodology are treated in several United Nations publications, notably: *Methods of Analysing Census Data on Economic Activities of the Population* (Sales No. E. 69.XIII.2); *Handbook of Population Census Methods*, vol. 2: *Economic Characteristics of the Population* (Sales No. 58.XVII.7); *Application of International Standards to Census Data on the Economically Active Population* (Sales No. 51. XIII.2). See also the International Labour Office, *International Standardization of Labour Statistics* (Geneva, 1959) and United States Department of Labour, *Demographic Techniques for Manpower Planning in Developing Countries*, (Washington, 1963).

3 Umemura, Mataji, *Seno Nippon No Rodorioku Sokutei to Hendo* (Labour Force of Japan in the Postwar Period, Estimates and Trends), Tokyo, 1964; Okazaki, Yoichi, *Nippon no Rodoryoku Mondai* (Labour Force Problems in Japan), Tokyo, 1966; Yu, Yeun-chung, "The Development of the Economically Active Population in East Asia, 1947-1966" (doctoral dissertation, University of Pennsylvania, 1969); Farooq, Ghazi M., "Dimensions and Structure of Labour Force and Their Changes in the Process of Economic Development: A Case Study of Pakistan" (doctoral dissertation, University of Pennsylvania, 1970); Thorner D., and Thorner, A., *The Working Force in India, 1881-1951*, Indian Statistical Institute, Bombay, 1960.

4 Saw, Swee-Hock, *Singapore Population in Transition*, University of Pennsylvania Press, Philadelphia, 1970; Taeuber, I.B., *The Population of Japan*, Princeton University Press, Princeton, 1958; United Nations, *Population Growth and Manpower in the Philippines* (Sales No. 61.XIII.2).

Sources of Data

Scope of population census data

4. The principal source of data for demographic studies of manpower is the population census. Thanks to the progress of census-taking in the countries of Asia and the Far East since the Second World War, the supply of such data is now much more satisfactory than it was previously, and futher improvement is to be expected when the results of the 1970-1971 round of censuses become avaiiable. At present, the region of Asia and the Far East is better supplied in this respect than Africa but not as well as Latin America and much less well than Europe and northern America.

5. For a majority of countries in Asia and the Far East, population census data on the labour force are now available as of at least two dates in the postwar period, so that at least crude measures of growth of the labour force and changes in some aspects of its structure and spatial distribution can be derived. Principal countries in this position include Ceylon, Hong Kong, India, Iran, Japan, the Republic of Korea, Malaysia (censuses of the former Federation of Malaya, Brunei, Sabah, and Sarawak), Nepal, Pakistan, the Philippines, Singapore and Thailand. Data from one postwar census are available for China (Taiwan), the Khmer Republic and Indonesia. For Burma, there are data from sampling surveys carried out in urban areas in 1953 and rural areas in 1954, but these fall short of covering the whole country. No census data on the labour force are yeta vailable for Afghanistan, People's Republic of China,[5] Laos, Mongolia, and Republic of Viet-Nam or Democratic Republic of, and only pre-war data for Democratic People's Republic of Korea.[6]

6. Pre-war census statistics for several countries in the region furnish a basis for studies of longer range trends, going back in some countries to early years of the present century. The scope for such studies is severely restricted, though, by shortcomings of the tabulations of labour force characteristics found in the early census publications. The tabulations of the postwar censuses also fall short, to an extent which varies from country to country, of providing all the most important data needed for demographic and other studies as well as for planning and administrative purposes. Some of the principal shortcomings are indicated in following sections of this paper where uses of the data for demographic analyses are discussed.[7]

Reliability and comparability of census data

7. Those who use census statistics of the labour force for any purpose should realize that these data are inherently inexact and make generous allowance for possibilities of error and bias as well as for possible effects of variations in the forms of the census questions and the accompanying definitions and instructions. This caution applies both to measures of dimensions and growth of the labour force and to data on its industrial, occupational, and status structure. It is an important part of the analyst's responsibility to test and evaluate the data by all available means, and he must be constantly alert to pitfalls in their interpretation.

8. Census data on economic activities of females are, in general, more sensitive than those of males to variations of definitions, enumeration procedures, reporting errors and biases. Agricultural workers in the industry and occupation classifications and unpaid family workers in the status classification are groups of which the enumeration is likely to be much affected by these factors. Among age groups, those near the two extremes of the span of working life are most susceptible to these influences.

9. In general, more caution is called for in using the statistics of less developed than of more developed countries, and more in the use of data for rural and agricultural than for urban and industrial sectors in countries at any level of development. The distinction between income-producers and others, which underlies the concept of the labour force, tends to be less clearly marked where production is carried on in a family enterprise than it is where the bread-winners work as wage-earners outside the family circle. On family farms and in family-operated shops, handicraft industries and the like, especially in rural areas of less developed countries, it is not uncommon that all family members except very young children join in the work of the income-producing enterprise at least on a part-time, seasonal, or irregular basis, and it is often not easy to draw a sharp line between such work and domestic chores. For this reason, some writers have questioned the relevance of the concept of the labour force to non-industrial societies.[8] Without admitting that the concept is irrelevant, it may be said that where production is organized to a large extent in family enterprises, the results of a labour force enumeration tend to be highly susceptible to reporting errors and biases and to influences of varying definitions and procedures. Especially, the time-reference of the census questions and the rules adopted for reporting of individuals engaged both in economic and other activities are likely to have important bearings on the results obtained in such circumstances.

10. Analysts attempting to reconstruct consistent time-series of labour force measures from the data of successive censuses in Asian and Far Eastern countries are faced with a vexing problem of assessing possible

5 Although a census was taken in China as of 1953, no data on the labour force are included in the published results.

6 These indications are based on a compilation of data made at the Population Studies Centre, University of Pennsylvania, during 1966-1969. The possibility of some omissions is recognized.

7 The varieties of classifications and cross-classifications of labour force characteristics found in postwar census reports of a number of Asian, African, and Latin American countries are outlined in Social Science Research Council, *Inventory of Data for Comparative International Studies of Labour Force Growth and Structure*, New York, 1966.

8 Jaffe, A. J., and Stewart, Charles D., *Manpower Resources and Utilization*, New York, 1951.

effects of the shifts, in recent censuses, away from traditional forms of questions about economic activities to more specific and more precisely defined enquiries.[9] The pre-war censuses and most of those taken during early postwar years in this region followed the practice, formerly common in censuses throughout the world, of calling for a report of each person's "usual occupation" (or means of livelihood in the Indian censuses) and counting those for whom gainful occupations were reported as economically active. In the censuses taken since 1955 in Asian and Far Eastern countries (and that of Japan in 1950), the reference to the usual occupation has been replaced by questions about activities during specified time periods. A week preceding the enumeration has been taken as the period of reference for some of the recent censuses while periods ranging up to twelve months in length have been specified for others. In the 1961 census of India, the reference in the case of seasonal activities was to the working year. The instructions for some of the recent censuses have provided that all persons engaged to any extent in economic activities during the reference period should report those activities, while the questions in some other recent censuses have referred to the principal activity (economic or other) during the specified period. The questions in India's 1961 census also departed from traditional practices in that country in another way, being oriented in the 1961 census toward economic activities rather than toward the means of livelihood of each individual as in 1951 and earlier Indian censuses.

11. These changes may have had the effect of inflating the measures of the labour force in some recent censuses and deflating them in others, as compared with earlier enumerations. The effect in each instance would depend on such circumstances as the extent of seasonal, irregular, and part-time employment; the times of the year when the censuses were taken; and the care taken by field workers and respondents to provide accurate reports, as well as on the forms of the questions and details of the instructions. The amount of the effect would vary, and its direction might not be the same, in different sex-age groups, occupations, industries, status categories, rural and urban sectors, etc. Ordinarily there is little basis for judging the directions of net effects and still less for estimating their size.[10] The resulting uncertainty should be kept in the forefront of interpretations of changes indicated by the census returns in such circumstances.[11]

Sample survey data

12. Although the measures of labour force dimensions and structural characteristics presented in following chapters of this paper are limited to those given by population censuses, these are not the only important sources of such data. The demographic sampling surveys developed during recent years in a number of Asian and Far Eastern countries have provided a great deal of supplementary data. In some countries, such surveys are conducted regularly at quarterly intervals. The current survey data for Japan, the Republic of Korea and the Philippines and those which have been collected in various Rounds of the Indian National Sample Survey deserve to be mentioned in particular.[12]

13. While sample surveys cannot take the place of the census as the source of detailed data on such matters as the industrial and occupational structure of employment and variations of labour force characteristics among areas within a country, they are highly valuable for getting basic measures at shorter intervals of time than are practical for the census. Time-series of survey data representing trends during intervals between censuses are very useful for studying processes of growth and structural change of the labour force and employment and gaining understanding of the factors involved. Sample surveys can also be used to get data on aspects of manpower, employment, and unemployment which cannot be investigated in a full-scale census. The variations of types of data on these subjects obtained in successive Rounds of the Indian National Sample Survey illustrate the value of flexible use of this medium for data collection.

Dimensions of the Labour Force

Crude activity rates

14. The size of the labour force in proportion to the total population is measured by the crude activity rate, which is customarily expressed as a percentage.[13] There are wide differences in this rate between countries in Asia and the Far East, as in other parts of the world.

9 On the forms of the census questions and main features of the definitions, see You, Poh Seng, "Growth and structure of the labour force in countries of Asia and the Far East", in United Nations, *The Asian Population Conference, 1963* (Sales No. 65.11.F.11); Miura, Yuki, "A comparative analysis of operational definitions of the economically active population in African and Asian statistics", in United Nations, *World Population Conference, 1965* (Sales No. 66.XIII.8), vol. IV; Yu, Yeunchung, *The Development of the Economically Active Population in East Asia, 1947-1966*, *op. cit.*

10 Some indications have been given, it is true, by results of different kinds of questions asked in the same enumeration or in consecutive enumerations separated by short time-intervals. Among the pertinent data are those of the 1953/54 sample enumerations in Burma (where both questions on activities during a week and on employment during a year were asked) and successive Rounds of the National Sample Survey in India (where questions with varying time-references have been asked).

11 For India, see Sinha, J.H., "Comparability of 1961 and 1951 census economic data", *Artha Vijnana*, December 1964, comment by P.M. Visaria and rejoinder, *ibid.*, December 1965; for Pakistan, see G. Farooq, *op. cit.*; for the Republic of Korea, Malaysia and the Philippines, see Y. Yu, *op. cit.*

12 United Nations, *Sample Surveys of Current Interest* (Statistical Papers, Series C, various issues); United States Department of Labour, *Summaries of Manpower Surveys and Reports for Developing Countries, 1958-68* (Bureau of Labour Statistics Bulletin 1628), Washington, 1969.

13 In accordance with the terminology of the United Nations manual, *Methods of Analysing Census Data on Economic Activities of the Population*, *op. cit.*, the term "activity rates" is used here as the equivalent of "labour force participation rates", "worker rates", and other such terms found in the literature in this field.

For fifteen principal countries in this region, crude activity rates derived from the data of censuses taken during 1946-1966 are listed in table 1 (column 1).[14] Viewing the data of the censuses of 1956-1966 as a cross-section and selecting those of the census nearest 1961 where more than one census was taken in this period, one finds a range of crude activity rates from 30.2 per cent in Iran (1966) to 53.2 in Thailand (1960) and a median value of 34.5.

15. The levels of crude activity rates in this region are fairly typical of those found in developing countries generally, as one can see in table 2, where the distribution of Asian and Far Eastern countries by levels of these rates are compared with corresponding figures for ninety-three countries in various parts of the world, classified by energy consumption per head as an indicator of industrialization. Higher rates on the average are found in more industrialized countries, but the levels differ greatly among countries within each group and differences between groups of countries are not very distinct.

16. A prevailing downward trend of crude activity rates appears in the statistics of postwar censuses of both developing and more developed countries throughout the world, continuing a longerrange trend of decrease which has been observed in most countries where long historical series of statistics are available. Among sixty countries in various regions for which data of censuses taken during both 1946-1955 and 1956-1966 have been compiled, a decrease of the crude activity rate was recorded in fifty-two and an increase in eight. Among the Asian and Far Eastern countries included in table 1, there are eleven having data of two or more postwar censuses; and of these, a falling trend of the crude activity rate is indicated in six (Ceylon, Iran, the Republic of Korea, Malyasia, Nepal, and Singapore), a rising trend in four (India, Japan, Pakistan, and the Philippines), and little change in one (Thailand). It is doubtful whether the increases indicated for India, Pakistan, and the Philippines are real since changes in the census questions, definitions, and instructions may have appreciably inflated the labour force enumerations in the latest censuses as compared with earlier censuses. The reality of these increases appears the more doubtful in view of the fact that the earlier secular trends of crude activity rates indicated by the censuses of these three countries since early decades of the present century had been generally downward.[15]

17. There is an apparent economic disadvantage in a low and falling crude activity rate since, under given conditions of productivity and extent of employment of the labour force, national output per head would vary in direct proportion to this rate. Or, looking at the matter from another angle, one may say that the higher the productivity of employed workers, the more easily a nation can afford to have a low crude activity rate. Some reservations are in order, though, when the economic significance of the rate is interpreted in such ways.

18. In the first place, the conditions of employment and level of output per employed worker are not independent of the size and growth of the labour force. In an inert economy, if the crude activity rate were raised, the effect might be mainly to increase unemployment or underemployment and possibly to reduce productivity, with little or no gain in output. Conversely, as studies in the United States and elsewhere have shown, the dimensions of the labour force may be sensitive to variations in intensity of demand for labour and in the level of earnings. Thus the size of the labour force does not strictly represent the supply of workers available for employment, but rather the result of interaction between supply and demand. It is possible that limited opportunities for employment may be a factor tending to depress activity rates in some developing countries in Asia and the Far East.

19. Moreover, the measures of labour force size do not take account of the amounts of working time which labour force members are prepared to put in. Where the labour force is inflated by participation of many women, children and others available only for part-time, seasonal or occasional work, the apparent economic advantage is partly illusory. On the other hand, many of those who do not participate in the labour force render services and produce goods for home consumption which have substantial economic value although they are not considered as income. Such contributions by housewives not in the labour force are especially important.

20. Also, as emphasized in the preceding chapter, the labour force measures provided by the censuses may be greatly affected by varying definitions, enumeration procedures, reporting errors and biases. As a result, the range of differences in crude activity rates among countries is almost certainly exaggerated.

21. These observations are not intended to deny the relevance of studies of labour force dimensions to economic problems, but to underline the need for caution in interpreting the measures. It is important to look at aspects of the composition of the recorded labour force which are relevant to assessment of both the reliability of the measures and their economic meaning. Sex and age groups, industry and occupation distributions, and status categories are among the features to be examined from these points of view.

Standardized activity rates and age-structure indices

22. The crude activity rate is determined by the age-specific activity rates of males and females (i.e. percen-

14 Tables 1-12 are contained in annex II. To eliminate variations resulting from difference in census practices with regard to age limits of the labour force enumeration, the labour force totals used in calculating these rates have been adjusted, with estimates as necessary, to a uniform age reference of 10 years and over.

15 On the interpretation of the changes shown by the latest censuses of these countries, see the works of J. Sinha, P.M. Visaria, Ghazi M. Farooq, and Yeun-chung Yu cited above. On the earlier secular trends in India and the Philippines, see B. Kalra, "A note on working force estimates, 1901-61", in: *Census of India* (1961), Paper No. 1 of 1962, "Final population totals" (New Delhi, 1962), appendix I; and *Population Growth and Manpower in the Philippines, op. cit.*

tages of labour force members among the male and female population in each age group) together with the sex-age composition of the population. Methods of standardization are used to measure the effects of these factors.[16]

23. The over-all level of age-specific activity rates for both sexes is measured by a standardized activity rate, which is a weighted average of the male and female specific rates for the various age groups with the proportions of sex-age groups in a selected standard population used as the weights. Such standardized rates can be calculated with reference to either the total population or the population of working ages, and separate rates can be calculated for males and females. For the countries of Asia and the Far East, tablet 1 (columns 2-4) shows standardized activity rates in the total population of both sexes and in the male and female population 10 years of age and over. The standard weights used in these calculations represent the sex-age composition of a model stable population having vital rates approximately representative of world averages as of 1960.[17]

24. The difference between a country's crude activity rate and the standardized rate in the total population measures the effect of differences in sex-age composition between the population of that country and the standard. This difference is expressed in proportionate terms by the age structure index shown in column 8 of table 1, which represents the ratio of the crude to the standardized rate multiplied by 100. (Actually, this index reflects effects of variations in the sex ratio as well as the age structure, but sex ratio variations are ordinarily relatively minor.) For example, the index of 91 for the Khmer Republic (1962) means that this country's labour force is 91 per cent as large as it would be if, with the recorded age-specific activity rates for each sex in that country, the composition of the population were the same as that of the model.[18]

25. The calculations of age-specific and standardized activity rates require a suitable classification by age groups of both the population and labour force for each sex. Where an age classification of the population but not of the labour force is given, an approximate analysis of the components of variation of labour force dimensions may still be possible. A device which yields more or less satisfactory approximations, depending on the circumstances, is to use refined activity rates—i.e., percentages of labour force members in the total population of each sex above the minimal age for the labour force enumeration, as shown for the Asian and Far Eastern countries in columns 5-7 of table 1—as substitutes for standardized rates. This has been done in table 1 for India (1951), Federation of Malaya (1947), Nepal (1952-1954), Pakistan (1951), and Thailand (1947), where no data or inadequate data on age distribution of the labour force were available. The age structure index can then be estimated by the ratio, $100\ q_i/Q$, where q_i is the percentage of population above the minimal labour force age in a given country and Q is the corresponding percentage in the standard population.[19]

26. The measures assembled in table 1 make it plain that the principal source of differences in crude activity rates among countries in Asia and the Far East is the varying proportion of women reported in the censuses as economically active. Standardized activity rates of females 10 years of age and over in the 1956-1966 cross-section range from 12.3 in Iran and 13.7 in Pakistan to 52.3 in the Khmer Republic and 74.7 in Thailand. The range is even wider among developing countries in other parts of the world, as can be seen in table 2. Wide differences are also found within countries. For example in Pakistan (1961), the proportion of the total female population (all ages) reported in the labour force varied from 1.2 per cent in Quetta Division to 24.6 per cent in Chittagong Division, and among the districts of the latter division, the percentage rose to 44.7 in Chittagong Hill Tracts.[20] While it is undoubtedly true that women take part in economic activities to a much greater extent in some societies and in some areas than in others, the differences are almost certainly exaggerated in the census statistics.

27. In the case of males, the differences between and within countries are not nearly so exorbitant, though by no means insignificant. Male standardized activity rates

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16 On method of standardization and the problem of interactions, see the United Nations manual, *Methods of Analysing Census Data on Economic Activities of the Population* (*op. cit.*), section II. For an application to the data of censuses taken around 1950 in various parts of the world, see United Nations, *Demographic Aspects of Manpower: Sex and Age Patterns of Participation in Economic Activities* (Sales No. 61.XIII.4).

17 Equal numbers of males and females in the total population of the model were assumed.

18 Somewhat different measures of effects of population composition would be obtained by a different approach to the problem: selecting a standard series of age-specific activity rates for each sex and weighting them with the proportions of the sex-age groups found in the populations of the countries to be compared.

19 The differences between refined and standardized activity rates, where both measures are available, provide an indication of the risks of error in such estimates. In table 1, these differences are in no case large for females but they are substantial in some cases for males, reaching 5.2 percentage points in Singapore (1966) and 5.6 in the Philippines (1948). It is pertinent also to compare estimates of the age structure index by the above formula with values calculated from crude and standardized activity rates where the latter are available. Here are Some examples:

		Calculated Values	Estimates
India	1961	96	95
	1951		99
Federation of Malaya	1957	91	90
	1947		97
Nepal	1961	96	96
	1952-1954		98
Pakistan	1961	92	96
	1951		96
Thailand	1960	92	95
	1947		95

20 Farooq, Ghazi M, *op. cit.*, table 11.4.

in the population 10 years of age and over, in the 1956-1966 cross-section for Asian and Far Eastern countries, range from 68.3 in the Republic of Korea (1960) to 84.2 in Nepal (1961) and 84.5 in Pakistan (1961). In the world-wide 1956-1966 cross-section, the highest rate is an estimate of 92.9 for Sudan (1956) and the lowest, 61.5 for Puerto Rico (1960).

28. The variations of population composition are about equal in importance to those of male activity rates, as regards their effects on labour force dimensions. Age-structure indices in the 1956-1966 cross-section for Asia and the Far East vary from 86 in the Philippines (1960) to 109 in Japan (1960). Relatively low values of this index are typical of most developing countries, as a result of high birth rates swelling the proportion of children in the population. The importance of this factor as an explanation of the lower average level of crude activity rates in little-industrialized than in highly industrialized countries can be seen in the median values of the age structure index among groups of countries in the world-wide 1956-1966 cross-section, on the bottom line of table 2. The effect of a falling birth rate is illustrated by the figures in table 1 for Japan, where the index rose from 100 in 1950 to 116 in 1965. In countries where the birth rates have begun to drop sharply in more recent years, such as China (Taiwan), Hong Kong, Malaysia, Singapore, and possibly the Republic of Korea, important effects on the age structure index were not yet visible at the dates of the latest censuses listed in table 1. Relatively high values of the index for Ceylon (1946 and 1953), Hong Kong (1961), and Singapore (1957) may reflect effects of immigration having swollen the proportion of adults in the population. Errors in the census enumerations of population by age group may also affect the index appreciably in some instances.[21]

29. It has been demonstrated by means of stable population models how considerably the crude activity rate in a population having high fertility may be raised in the long run by moderation of fertility, under given conditions of mortality and age-specific activity rates.[22] This question can be studied in the context of actual demographic conditions of a country by means of projections starting with the population composition, fertility, mortality and age-specific activity rates of the base period and assuming alternative courses of change in each factor, including migration where its role may be important.[23]

Participation of males in the labour force

30. An inverse association between industrialization and the extent of participation of males in the labour force can be seen in the world-wide cross-sectional comparison of male age-standardized activity rates, in table 2. In terms of age-specific activity rates, the average level in highly industrialized countries is below the average of little industrialized countries, especially in the age groups under 15 and over 65 years, and smaller differences following the same pattern are found in the rates for males in ages 15-19 years and 55-64 years.[24] In other words, industrialization appears to be accompanied by a tendency to raise the average age at which young men enter the labour force and to lower the average age of retirement. These tendencies have been attributed to several factors in the process of industrial development and related economic changes: rising income per head making it easier to afford prolonged schooling for the young and to support the elderly in retirement, changes in occupational composition of demand for labour calling for higher educational qualifications of the labour force, and decreasing opportunities for self-employment and family enterprise making it more difficult for the elderly worker to remain in the labour force and for the young to find an entry.

31. Decreases of male activity rates in the youngest and oldest age groups have been recorded in most of the countries throughout the world where data have been obtained from two or more postwar censues. The generality of this trend among countries in diverse economic circumstances, including many where progress in economic development has been relatively slow, implies that the factors promoting it are not only of an economic character. Strong influences of non-economic factors are also indicated by the variations of male standardized activity rates within groups of countries at comparable levels of industrial development, as shown in table 2. These variations are especially noticeable among the countries in the lowest bracket of energy consumption, where some of the world's lowest male activity rates are found although the median level is relatively high. The data suggest that industrialization tends to iron out differences in the recorded levels of these rates, which may be due to differences of cultural traditions or to the variations of census definitions and so on, and to equalize them on a relatively low plane. The implication is that the greatest decreases of male activity rates in countries undergoing industrialization in the future may be expected to occur where present levels of these rates are highest.

32. In Asia and the Far East, as table 2 shows, the levels of the male standardized activity rates indicated by the data of the 1956-1966 censuses are fairly typical of those of little-industrialized countries in general, although the range of variations is not so wide here as

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21 See Farooq, Ghazi M., *op. cit.*, pp. 38-39, on the effect of misreporting of ages in the 1961 census of Pakistan upon the refined activity rate.

22 United Nations, *The Aging of Populations and Its Economic and Social Implications* (Sales No. 1956.XIII .6), pp. 54-60.

23 A methodological example is given in *The Aging of Populations and Its Economic and Social Implications*, *op. cit.*, For further discussion of methods, see United Nations, *Methods of Analysing Census Data on Economic Activities of the Population op. cit.*, An example of the use of such projections to estimate economic effects of a decrease of fertility in developing countries is found in A.J. Coale and E.M. Hoover, *Population Growth and Economic Development in Low-Income Countries*, Princeton University Press, Princeton, 1958.

24 United Nations, *Demographic Aspects of Manpower*, *op. cit.*, table 12.

in some other regions. The changes recorded between postwar census dates, shown in table 1, are less typical in that the prevailing downward trend is less clearly marked in this region than elsewhere. Of the eleven Asian and Far Eastern countries for which measures are given, the male standardized rates show substantial increases between the latest census dates in three countries (India, Pakistan and the Philippines), not much change in five (Ceylon, the Republic of Korea, Malaysia, Nepal and Thailand), and substantial decreases only in three (Iran, Japan and Singapore). However, for the reasons noted above, the increases indicated for India, Pakistan and the Philippines are questionable.

33. Age-specific activity rates of males and females derived from the postwar census data of Asian and Far Eastern countries are shown in table 3.[25] It is interesting to see how these compare with the rates in western industrialized countries. The average age at which males enter the labour force in a given country can be considered as distinctly earlier than the norm of western industrialized countries if the activity rate of males 15-19 years old in that country exceeds the interquartile range for the western industrialized group, later if it falls below that range, and indifferent if it is within the interquartile range.[26] Differences in the age of retirement can be specified likewise with regard to unweighted averages of activity rates for age groups above 65 years. In this way, patterns of male age-specific activity rates in the 1956-1966 cross-section for countries in Asia and the Far East can be typified as follows:

Earlier entrance into the labour force, later retirement than the western industrial norm (6 countries): India (1961), Indonesia (1961), Iran (1966), Nepal (1961), Pakistan (1961) and Thailand (1960).

Earlier entrance into the labour force, earlier retirement than the western industrial norm (6): China (1956).

Indifferent entrance into the labour force, later retirement than the western industrial norm (6): Hong Kong (1961), Japan (1960), Khmer Republic (1962), Federation of Malaya (1957), the Philippines (1960) and Singapore (1957).

Later entrance into the labour force, later retirement than the western industrial norm (2): Ceylon (1963), and the Republic of Korea (1960).

34. It is remarkable that so many developing countries in Asia and the Far East do not conform to the expected pattern of differences with western industrialized countries. The cases of Ceylon, China (Taiwan) and the Republic of Korea are particularly remarkable. It is worth while to investigate to what extent problems of measurement may account for these anomalies, and if they cannot be explained in this way, to inquire into other factors which may cause such deviations from the expected pattern.

35. It is also interesting to make comparisons of the height of the male activity rates at their peak, which is usually reached at ages 30-34 years, 35-39 years or 40-44 years. Although differences between countries in this respect are never very large, they may be significant manifestations of conditions of employment opportunity, propensity to be employed, and employability of men of prime working ages. Applying the criteria stated above, one can distinguish three groups of Asian and Far Eastern countries as regards the peak levels of the male rates in the 1956-1966 cross-section:

Indifferent from western industrial norm (7): Hong Kong (1961), India (1961), Iran (1966), Japan (1960), Federation of Malaya (1957), Singapore (1957) and Thailand (1960).

Lower peak (6): Ceylon (1963), China (1956), Indonesia (1961), the Republic of Korea (1960), Pakistan (1961) and the Philippines (1960).

Higher peak (2): The Khmer Republic (1962) and Nepal (1961)

36. The statistical picture of changes in age-specific activity rates over time is sadly incomplete in this region, as measures from two or more postwar censuses

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25 To get the data into a uniform classification of five-year age groups as shown in this table, it was often necessary to make interpolations in classifications of broader age groups found in the census reports. Rates for the age group 10-14 years were also calculated, or estimated where the censuses did not provide data for this age group, but these rates are not shown in the table because their reliability is poor.

26 The following interquartile ranges of male age-specific activity rates in the 1956-1966 cross-section have been calculated for a group of sixteen western industrialized countries (twelve countries in northwestern Europe, the United States, Canada, Australia and New Zealand):

Age	Interquartile Range	Age	Interquartile Range
15-19	51.5-66.4	50-54	93.4-96.8
20-24	86.1-91.4	55-59	86.9-94.2
25-29	94.1-97.2	60-64	71.7-85.7
30-34	97.2-98.6	65-69	36.2-56.0
35-39	96.9-98.6	70-74	20.5-28.4
40-44	96.8-98.3	75 and over	7.4-14.6
45-49	95.6-98.0		

are available only for six countries: Ceylon, Iran, the Republic of Korea, Japan, the Philippines and Singapore. [27] In these cases, generally downward trends are indicated in the rates for males over 70 years of age except in the Philippines, with precipitate declines between the latest censuses in Ceylon, Iran and the Republic of Korea. Also for males between ages 55 and 70, a sagging tendency of the rates can be seen except in the Philippines and Japan. A decreasing trend in the male rates for ages under 20 years appears except in the Philippines, and the age group 20-24 years is also somewhat involved in this trend in Iran, Japan and Singapore. Changes in the age groups between 25 and 55 years are mostly small, upward in some cases and downward in others. On the whole, the movements are toward later entrance of males into the labour force and earlier retirement. It is noteworthy that these movements have not been confined to countries at relatively high levels of development or to those which have developed most rapidly during the postwar years.

37. Table 3 also shows gross years of active life, a measure derived from the age-specific activity rates which represents the average length of working life for a cohort of males or females subject to the given activity rates at each age, if none should die before retirement age. [28] The maximum value of this measure as calculated here would be 70 years if the activity rates were 100 per cent in all age groups from 10 years up. For the fifteen Asian and Far Eastern countries in the 1956-1966 cross-section, gross years of active life of males range from 46.6 for China (Taiwan) (1956) to 60.7 for Pakistan (1961). Of course, the actual expectation of working life is shortened by mortality to an extent which can be measured by calculating "tables of economically active life" if mortality rates according to age are given. [29]

Participation of females in the labour force

38. The levels of female activity rates recorded in the censuses of different countries and their changes over time seem to be influenced less than those of males by economic conditions and more by traits of culture as well as by the census definitions, enumeration procedures and reporting biases. Thus there are wider variations in levels of the female than of the male rates among countries in similar economic circumstances, and there is more diversity in the time-trends of the female rates, which rise in some countries and fall in others, showing little if any consistent pattern of association with economic changes.

39. Although the median values of female standardized activity rates shown in table 2 are appreciably higher among countries in the upper brackets of energy consumption than in the lower brackets (opposite to the pattern of the male rates), not much significance can be attached to this difference in view of the great variations within the lower brackets. In fact, there is no correlation between energy consumption and the female standardized activity rate among the ninety-three countries in the 1956-1966 cross-section (rank correlation coefficient of -.06, whereas the corresponding coefficient for the male rates is -.46.). These data also fail to bear out a hypothesis which has been proposed, that in the course of industrialization and related economic developments, women's participation in economic activities decreases at first, but increases again when a more advanced stage of development is reached. [30] However, such a hypothesis may be valid in some cultural settings while different relationships between economic development and the trend of female activity rates may hold in other settings. [31]

40. The tendency toward equalization of the levels of activity rates as industrialization progresses, noted in the cross-sectional comparison of the rates for males,

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27 Age classifications of the labour force are lacking in the tabulations of the early postwar censuses of India, the Federation of Malaya, Pakistan, and Thailand, and only a classification by broad age groups is given for Nepal (1952-1954). At least a classification in five-year age groups up to 25 years and ten-year groups between 25 and 65 years is needed to get a good view of the from of the age-curve of activity rates for each sex, to identify age groups in which the rates may be influenced in different ways or degrees by various factors, and to furnish a sound basis for calculating standardized rates, functions of the tables of working life and other derived measures. The age classification of the labour force given in the tabulations of India's 1961 census is not adequate for these purposes. The rates for India given in table 3 are estimates made by Mr. Pravin Visaria at the University of Bombay and have kindly been made available to the author. They were estimated by interpolation of national census figures for broad age groups with the help of a retabulation of data from the 1961 census for Maharashtra State. Such retabulations for a few other states of India are also being made under Mr. Visaria's direction at the University of Bombay.

28 This is calculated as the sum of the age-specific rates (including the rate for the age group 10-14 years) of either sex, multiplied by 5 to put the figures for five-year age groups on a yearly basis and divided by 100 to reduce the calculation from a percentage to a per unit basis. The group of 75 years and over has been treated as a five-year group for this calculation.

29 On methods of calculating such tables and their applications, see United Nations, *Methods of Analysing Census Data on Economic Activities of the Population*, *op. cit.*, section I.d. and appendix. On variations of gross and net years of active life and losses due to mortality, calculated from the data of censuses taken around 1950 in various parts of the world, see United Nations, *Demographic Aspects of Manpower*, *op. cit.* Gross years of active life may also be used as an alternative to standardized activity rates for measuring over-all levels of age-specific activity rates, but the former measure is biased by giving undue weight to the rates for older age groups.

30 Sinha, J.N., "Dynamics of female participation in economic activity in a developing economy", in United Nations, *World Population Conference, 1965*, vol. IV.

31 On the varieties of cultural traditions with regard to women's participation in various kinds of economic activity, see Boserup, E., *Woman's Role in Economic Development*, (George Allen and Unwin, London, 1970).

is marked more strongly in those of females, as shown in table 2. In the case of females, the rates converge, not toward a relatively low or high level, but toward the centre of the range.[32] This observation suggests that in the future, as developing countries move forward in industrialization and other economic developments, the censuses may show a decreasing trend of female activity rates where they are relatively high and an increasing trend where they are relatively low.

41. Comparing the female standardized activity rates of Asian and Far Eastern countries with those of the western industrialized countries and applying the same criteria stated above for comparisons of the male age-specific rates, one can identify the following types:

Female participation in the labour force indifferent from the norm of western industrialized countries (3 countries): Hong Kong (1961), India (1961) and Indonesia (1961).

Female participation less than the norm of western industrialized countries (8): Ceylon (1963), China (1953), Iran (1966), the Republic of Korea (1960), Federation of Malaya (1957), Pakistan (1961), the Philippines (1960) and Singapore (1957).

Female participation greater than the norm of western industrialized countries (8): Japan (1960), the Khmer Republic (1962), Nepal (1961) and Thailand (1960).

42. The very low female activity rates shown by the censuses of Iran and Pakistan are a mark of Islamic culture, seen also in the statistics of Arab countries in southwestern Asia and northern Africa (but not in those of some other Moslem populations, in Indonesia and Malaysia, for example). The tradition of *purdah* may inhibit women's employment outside the home in Moslem communities, and their participation as unpaid workers in family enterprises is also relatively low in Iran and Pakistan as measured by the census data, possibly in part because the people are reluctant to recognize such work by women as economic activity and to report it as such in the census. Progress in popular education as well as industrialization may weaken these traditions and make way for female activity rates to increase in these countries in the future.[33]

43. Age-specific activity rates of females over 60 or 65 years of age are typically higher in Asian and Far Eastern countries than the norm of the western industrialized countries, even where the level of the rates for younger women is below that norm or indifferent. There are strong reasons for expecting the rates for elderly women to decrease in Asian and Far Eastern countries in the future as industrialization proceeds and income levels rise.

44. Postwar trends in women's activity rates have been mixed in the countries of Asia and the Far East, as in other regions. Of the eleven Asian and Far Eastern countries for which changes between census dates can be measured by the figures in table 1, a falling trend is indicated in two (Ceylon and the Republic of Korea), a rising trend in five (India, Iran, Pakistan, the Philippines and Singapore), and little change in four (Japan, the Federation of Malaya, Nepal, and Thailand). In accordance with the hypothesis of a tendency toward equality in the long run, increases of the female rates were recorded in all countries where they were below the median level of the region; but there was no consistent direction of trend among those where the rates were above the median. For reasons already mentioned, the increases indicated by the latest censuses in India, Pakistan and the Philippines are dubious. The drop of the female rate in the Republic of Korea between the 1955 and 1960 censuses is too large to be readily accepted as representing reality.

Urban and rural patterns

45. Urbanization has an important bearing on the dimensions of the labour force, since the patterns of activity rates in urban and rural populations are typically very different.[34] In the case of males, the urban rates are almost universally lower than the rural. The data shown in tables 4 and 5 for seven countries in Asia and the Far East where urban-rural classifications of the labour force were found in the census publications are typical in this respect. The urban male standardized activity rates fall below the rural rates by amounts which range from less than 1 percentage point in Japan (1965) to more than 13 points in Pakistan (1961). The census definitions of urban and rural localities, which are far from being standardized, may have much to do with the size of these differences. Age-specific activity rates

32 Similar patterns of convergence have been noted in secular trends of female activity rates in western industrialized countries (C.E.V. Leser, "Trends in women's work participation", *Population Studies*, November 1958) and among the states of the United States (S. Kuznets, A.R. Miller, & R.A. Easterlin, *Population Redistribution and Economic Growth, United States, 1870-1950*, vol. II, American Philosophical Society, Philadelphia, 1960); also among Latin American countries since the Second World War (J.D. Durand, "Activity rates in Latin America", paper presented at the IUSSP Latin American Population Conference, Mexico, D.F., 1970).

33 With regard to the influence of Islamic traditions upon employment of women in Pakistan and the reporting of their employment in the census, see Farooq, G.M., *Dimensions and Structure of Labour Force and Their Changes in the Process of Economic Development, op. cit.*

34 Denti, E., "Sex-age patterns of labour force participation by urban and rural populations", *International Labour Review*, December 1968.

of males are, with few exceptions, lower in the urban than in the rural population at all levels of age, with appreciable differences even in the central age groups where the participation of men in the labour force is at a maximum.

46. For females also, lower urban than rural activity rates are the rule in Asia and the Far East, [35] though not in some other parts of the world. (The opposite pattern prevails in western Europe and in Latin America.) There is more variation in levels of the female rates as recorded in the censuses for rural areas than for urban areas, possibly because the rural rates are more sensitive to the variations of definitions and enumeration procedures and to biases in reporting of women's economic activities.

47. Little can be said about trends in urban and rural activity rates in Asia and the Far East as a region, since urban and rural data from two or more censuses are available only for Iran and Japan. The gaps in census data on urban and rural labour force in this part of the world are particularly regrettable in view of the rapid growth of urban population throughout much of the region in recent times and the need to take this into account in labour force projections and development plans.

Effects of other demographic and economic factors upon activity rates

48. In addition to the sex and age composition and rural-urban distribution of population, effects of some other features of population composition upon labour force dimensions can also be studied by cross-classifications of characteristics enumerated in censuses or demographic sample surveys. The most important of these are marital status, especially of women, maternal status (i.e. the classification of women according to number and ages of children in their care) and level of education.

49. Without undertaking to draw up a regional summary of measures, it may be noted that the data required for calculating female activity rates specific for marital status and age have been provided by tabulations of recent censuses of a number of countries in Asia and the Far East. These can be used to estimate effects of variations in age at marriage, frequency of non-marriage, and the incidence of widowhood and divorce upon the rates of women's participation in economic activities. The cross-classifications needed for studying variations of activity rates according to level of education are less widely available. These, too, are of interest mainly with reference to females, as clues to the conditions which influence women's decisions to join in economic activities or not and to the effect of increasing popular education upon the trend of their activity rates. [36]

50. Data on the relationships between maternal status and economic activity of women are important not only for analysing determinants of dimensions of the female labour force and assessing the influence of the level and trend of fertility in this connexion, but also for studying the possible reciprocal effect of women's participation in economic activities upon fertility. The need for information on this subject is enhanced by proposals to encourage increasing employment of married women as a means of moderating the birth rate. A comparative analysis of pertinent data from a few countries in different parts of the world has led to the conclusion that the inhibition of economic activity by maternal responsibilities or *vice versa* is mainly important in the setting of urban and industrial society and may generally have little to do with either fertility or female activity rates in the rural and agricultural sectors of developing countries, where women's economic activity takes the form mainly of participation as unpaid family workers in agriculture or cottage industries. [37] Data for the study of this question have not yet been extensively developed in the countries of Asia and the Far East. While appropriate cross-tabulations of census returns can provide such data, demographic sample surveys are better suited to the investigation of this question.

51. In addition to the relations between educational level and economic activity of adults, it is important to study how school attendance is related to the participation of young people in the labour force. [38] The rising trend of school attendance which is general among developing countries in Asia and the Far East and elsewhere is obviously an important factor in the trend of activity rates in the school-going age groups, but the two trends may not go exactly in step with each other. Not uncommonly in censuses and demographic surveys in developing countries, considerable numbers of teenage males are reported as neither in school nor in the labour force, suggesting the presence of concealed unemployment among these youths. In the 1961 census of Indonesia, for example, this category amounted to about 10 per cent of the male population in the age group of 15-19 years and slightly more in that of 10-14 years. [39] The size of such gaps between school attendance and labour force participation may vary both with the trends of school attendance and the conditions of employment opportunity.

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35 An exception appears in the 1956 census of Iran, but not in the 1966 census of the same country. The picture of changes in urban and rural activity rates between 1956 and 1966 given by the Iranian censuses suggests the likelihood of a relative underenumeration of the rural female labour force in the 1956 census.

36 Indian census data on labour force participation of women in relation to educational level have been analysed by Sinha, J., "Dynamics of female participation in economic activity in a developing economy", *op. cit.*

37 Jaffe, A.J., and Azumi, K. "The birth rate and cottage industries in underdeveloped countries", *Economic Development and Cultural Change*, vol. IX, 1960.

38 Ways of using census statistics and other data to study this relationship are discussed in United Nations, *Methods of Analysing Census Data on Economic Activities of the Population*, *op. cit.*, pp.56-59.

39 *Ibid.*

52. Studies of differences in levels and trends of activity rates among regions, districts, metropolitan areas, cities and so on within a country can provide information about influences of factors not easily represented by cross-classifications of the characteristics of individuals recorded in a census of demographic survey. Studies of such geographical variations may help to illuminate such questions as how activity rates are affected by the conditions of unemployment and underemployment by pressures connected with population growth and density, by the composition of employment opportunities in terms of occupational and industrial categories and status groups and by the levels of earnings. Other questions such as the possible impact of migration into the cities upon activity rates of the urban residents and whether women are being squeezed out of the labour market by competition of men for scarce jobs, or *vice versa*, can also be investigated in this way. Hardly a beginning has yet been made in research along these lines in the countries of Asia and the Far East.[40]

53. The scope for such studies is limited in varying degrees in different countries by shortcomings of the tabulations of census data for geographical units. The classifications of labour force characteristics and other relevant data given in such tabulations are often severely abridged, and the geographical units may be too large and heterogeneous to afford a good view of the variations and associations. In spite of such shortcomings, the census statistics of a number of countries in the region provide a bassis which is well worth exploiting for studies of geographical variations.

Structure of economic activities

54. Studies of the structure of economic activities in terms of industry, occupation and status groups are relevant in many ways to policy formation and planning for economic development. Without attempting a comprehensive discussion of questions for study and designs for research, the following sections will be focuses mainly on the use of industry, occupation and status classifications for measuring the development of the economy as a whole and in various sectors, appraising the quality of employment of labour resources and examining the pattern of women's participation in economic activities. Of course, other kinds of measure in addition to those considered here are needed, especially for the first and second of these purposes.

Manpower in the agricultural sector

55. The change in structure of economic activities going with modern economic development has two main aspects: growth of the proportionate share of manpower employed in the non-agricultural sector at the expense of agriculture, and upgrading of the industry, occupation, and status distributions of employment within the non-agricultural sector. Preponderance of employment in agriculture is one of the most conspicuous and characteristic marks of the underdeveloped economy. In fact, the relative share of the agricultural sector in total labour force or employment is widely used as an indicator of economic development. To transform the economic structure from one dominated by agriculture to one in which non-agricultural industries yielding greater output per unit of labour employ a major share of the labour force is generally considered as indispensable for achievement of satisfactory levels of income and material well-being of the population in developing countries. In many of these countries, not only the proportionate share of manpower in the agricultural sector but also the absolute number of agricultural workers, the growth of this number and its relation to land resources are matters of major concern. In some, the success of economic development is thought to depend on the possibility of putting an early stop to the growth of the labour force in agriculture and beginning to reduce its number in the near future.

56. Table 6 shows measures of absolute and relative size of the labour force or employment in the agricultural sector (including forestry, hunting and fishing) and ratios of agricultural manpower to area of cropland, derived from the data of 1946-1966 censuses of countries in Asia and the Far East.[41] With the exceptions of Hong Kong and Singapore, where the population is almost wholly urban, Japan is the only country in the region which has a substantial majority of workers in non-agricultural industries. The share of the agricultural sector in Japan dropped from 48.3 per cent of employed workers at the 1950 census to 24.7 per cent in 1965. Japan since the Second World War has been in the stage of development at which not only the proportion but also the absolute number of workers in agriculture declines at an accelerating rate.

57. Among the remainder of countries in the region for which data are given, the shares of the agricultural sector ranged, in the 1956-1966 cross-section, from 46.2 per cent in Iran (1966) to 93.8 per cent in Nepal (1961). Considerable decreases between census dates were recorded only in Iran and the Federation of Malaya among the countries for which data of two or more censuses are given. In Ceylon, India, Nepal, Pakistan, the Philippines and Thailand, little change in relative shares of the agricultural and non-agricultural sector between censuses is indicated, slight ups and downs being insignificant in view of the margins of error which must be attributed to the measures.[42]

40 An example is found in G. Farooq's study of the labour force of Pakistan, cited above.

41 Some censuses are omitted because industry tabulations were not found, although they may exist. Data for employed workers were preferred where they were found, but in some specified cases data including the unemployed were used.

42 In India, Pakistan, and the Philippines, it is possible that some decrease in the proportionate share of the agricultural sector may have been concealed by the effects of changed definitions and enumeration procedures in the latest censuses. If, as suggested above, these changes had the effect of inflating the measures of the labour force, the degree of inflation would probably have been greater in the agricultural than in the non-agricultural sector. An additional factor of uncertainty which affects the data for all the countries in varying degrees is variation in relative size of the category of workers not classified by industry, which has been placed in the non-agricultural sector for the calculations shown in tables 6, 7 and 8.

58. In the demographic circumstances of most developing countries, failure of the proportionate share of the agricultural sector to shrink markedly means rapid growth in absolute numbers of workers in agriculture. Such a trend appears in the statistics of India, Pakistan, the Philippines and Thailand. The increase recorded in Ceylon between the 1953 and 1963 censuses is more moderate, and practically no increase in agriculture is indicated for the former Federation of Malaya between 1947 and 1957. Some decrease in the number of agricultural workers in Iran is indicated by the comparison of the 1956 and 1966 census data, but the reality of this is questionable for a country in Iran's economic and demographic circumstances. It is undoubtedly related to the precipitate declines recorded between 1956 and 1966 in the activity rates of rural males at ages above 60 years (table 5), and the reality of this feature also appears dubious.

59. In such comparisons of relative size of the agricultural labour force, one faces a dilemma: whether to base the measures on the statistics for both sexes or on those for males only. The data for males are less susceptible to errors and biases but they present a one-sided picture. The regional pattern sketched above does not change fundamentally when the figures for males only (also given in table 6) are considered instead of those for both sexes, but appreciable differences are found in Japan, the Khmer Republic, the Federation of Malaya and the Philippines. Such differences may be larger in comparisons of statistics for geographical units within countries. It is prudent to calculate the measures in both ways and to take both into account when substantial discrepancies appear.

Industrial structure of the non-agricultural sector

60. Within the non-agricultural sector, the International Standard Industrial Classification (ISIC) specifies seven major divisions, of which three ordinarily account for a large majority of the workers - namely, manufacturing, commerce, and services. There are important differences among countries in the relative shares of these divisions in total non-agricultural employment, as illustrated by the data for Asian and Far Eastern countries in table 7. At the latest censuses, manufacturing was in the lead in Hong Kong, Iran and Japan; manufacturing and services had nearly equal shares in India, Nepal, Pakistan and the Philippines; services predominated in Ceylon, China Indonesia, the Khmer Republic, the Republic of Korea, the Federation of Malaya and Singapore; while commerce occupied the largest share of the non-agricultural labour forte in Thailand. Large differences are found also among countries at more advanced levels of economic development, as illustrated by the figures in table 7 for England and Wales, where manufacturing is the largest division, and the United States, where manufacturing and services are about equal in importance as fields of employment. On the whole, the variations in composition of the non-agricultural sector in terms of the ISIC major divisions show little consistent relationship with levels of economic development. Time-trends in relative shares of the divisions are also divergent in different countries. For example, in table 7, the proportionate share of manufacturing in non-agricultural manpower appears to have increased between the dates of the latest censuses in Iran, the Philippines, Singapore and Thailand, changed rather little in Japan as well as Ceylon, India and Nepal, and decreased in the Federation of Malaya.

61. Clark's classification of primary, secondary, and tertiary industries and Kuznets's modification of this specifying "A", "M", and "S" sectors are widely used for summing up the structure of economic activities as an aspect of economic development.[43] But, as the observations above imply and Kuznets found in his empirical studies, there is no consistent pattern of differences between the secondary and tertiary or the "M" and "S" sectors in relative size or rates of expansion in different stages of the development process. These broad sectors must be subdivided if groups of industries are to be identified which follow a predictable pattern of expanding or contracting relative shares in the total of non-agricultural employment as economic development proceeds. The identification of such groups requires a more detailed classification of industries than is provided by the ISIC major divisions.

62. For this and other similar purposes the scheme of industry groups outlined in annex I has been worked out at the Population Studies Centre of the University of Pennsylvania.[44] In terms of the second digit of the ISIC code, five groups of industries are formed within the manufacturing division, two within commerce, two within "transport, storage, and communication" and three within the services division. For use where the census tabulations provide more detailed industry classifications in terms of the ISIC third digit, subgroups are formed within some of the groups in the divisions of commerce and services. The result is an industry classification in a readily manageable number of categories which serves better than the Clark or Kuznets sectors or the ISIC major divisions to represent features of the industrial structure that are relevant to problems of economic development and planning, especially in developing countries.

63. An application of this scheme is illustrated in table 8, which shows percentage shares in the non-agricultural sector of three industry groups identified as "traditional" and three identified as "development" industries. The "traditional" industries tend to occupy relatively large shares of non-agricultural manpower

43 Clark C., *The Conditions of Economic Progress*; Kuznets, S., "Quantitative aspects of the economic growth of nations. II. Industrial distribution of national product and labor force", *Economic Development and Cultural Change*, Supplement, July 1957. On this and other aspects of "the deployment of the labour force during economic growth", see also Phelps Brown, E.H. *The Economics of Labour* (Yale University Press, New Haven, 1962), chapter 4.

44 For an application, see Miller, A.R., "Some characteristics of the industrial structure of employment in Latin American countries", paper presented at the IUSSP *Latin American Population Conference*, Mexico, D.F., 1970.

in an economy at a low level of development, and to diminish in relative importance within the non-agricultural total as economic development progresses, while the "development" industries exhibit an opposite tendency. Under the heading of "traditional" industries, the group labelled "textiles" represents textiles, footwear, and apparel industries (ISIC codes 23 and 24) in the manufacturing division; "trade" represents wholesale and retail trade (ISIC 61) in the commerce division, and "personal services" is the ISIC group with that title (code 85) in the services division, comprising domestic service, restaurants, hotels, laundries, barber and beauty shops and the like. Under the heading of "development" industries, "metals" refers to the metal and metal products manufacturing industries except machinery and transportation equipment manufacturing (ISIC 34-35), "machinery" represents manufacturing of machinery and transportation equipment (ISIC 36-38), "finance" is that part of the commerce division not included in wholesale and retail trade, comprising banks and other financial institutions, insurance and real estate (ISIC 62-64), and "CBR services" refers to community, business, and recreation services (ISIC 82-84).

64. Data for China (Taiwan), Indonesia, the Khmer Republic and Nepal could not be put into this form because only major industry divisions were found in available census publications of these countries or in international compendia. Among the eleven other countries in the region for which data are given, totals of the selected groups of "traditional" industries in proportion to the totals of non-agricultural workers according to the latest censuses range from 35 per cent in Japan and the Federation of Malaya to 52 per cent in the Republic of Korea. Typical figures for highly developed countries are considerably lower: for example, 29-30 per cent in the United States and England and Wales as of the 1960 and 1961 censuses. Measures of intercensal changes are available for five of the Asian and Far Eastern countries, showing decreases in relative shares of "traditional" industries in India, the Federation of Malaya, and Singapore and little change in Iran and Japan.

65. A more definite, positive correlation can be seen between levels of economic development and the total percentage shares of the three selected "development" industry groups in non-agricultural manpower. These range, among the Asian and Far Eastern countries at the latest census dates, from 10-12 per cent in the Philippines, Iran, India and Pakistan to 17 per cent in Hong Kong, 20 per cent in Singapore, 27 per cent in Japan and rise to 31-32 per cent in England and Wales and the United States. An increasing trend is indicated in all the Asian and Far Eastern countries for which measures of intercensal changes are given.

66. The distinction between "traditional" and "development" industries can be made sharper where the census tabulations provide classifications at the level of the third digit of the ISIC code. For example, in the group of wholesale and retail trade, the retail subgroup can be selected as one which tends to behave in an especially "traditional" way. Within personal services group, domestic service can be singled out as a subgroup which differs from the other personal service industries in its pattern of variations with economic development.

67. The way of grouping non-agricultural industries illustrated here is also useful for studying variations in the quality of employment. In the industries considered here as "traditional", especially in little-developed economies, productivity and earnings tend to be relatively low; they tend to be dominated by self-employment, family enterprises and small wage-labour establishments employing relatively little capital and many "marginal" workers with relatively low occupations. It is possible to grade non-agricultural industries in a country with reference to available indications of the quality of employment (such as status composition, productivity as represented by the relationship between number of workers and share of an industry in gross domestic product and so on), and so to appraise the structure of non-agricultural employment in different parts of the country and changes over time.

68. Unfortunately, studies of the industrial strucutre of employment as it relates to the processes of economic development, the organization of production, productivity and earnings levels, and the like are hampered by inadequacy of the industry classifications of census data, eapecially for component areas of countries and in cross-classifications with other characteristics. The utility of the data for such purposes is severely limited when only the classification of major ISIC divisions is provided.

Status Categories

69. The classification of status group — employees, employers and own-account workers, unpaid family workers, and additional categories in some censuses — mirrors the structure of economic activities from another angle. A low proportion of employees in non-agricultural industries, meaning high proportions of self-employed and/or unpaid family workers, is one of the marks of the under developed economy, which reflects the "atomized" organization of production largely in family enterprises and other small units. By studying the proportions of employees among all workers in various industries, one can get an idea of levels of technological as well as organizational development and the quality of employment in different branches of the economy. It is useful to consider the data for each sex, but attention will be confined here to those for males.

70. Table 9 gives a regional view of the percentages of male workers classed as employees, according to industry sectors and divisions, in the countries of Asia and the Far East. In the labour force as a whole, the proportionate share of employees is much influenced by the size of the agricultural sector, which has a much smaller percentage of employees than the non-agricultural sector has, in all the countries considered here. There are important differences between countries in the relative numbers of men engaged as employees within the agricultural sector, but these do not have the

same significance in relation to technological advancement and quality of employment as can be attributed to the variations of status composition in non-agricultural industries.

71. In the non-agricultural sector, percentages of employees among male workers vary in generally positive though somewhat irregular association with the level of development of the economy. These percentages fall below 50 in the latest census figures for India and Pakistan and rise above 80 in Japan and Hong Kong. In England and Wales and the United States, they reach the vicinity of 90 per cent. Of the three major non-agricultural industry divisions, commerce consistently has fewest employees. The dominance in commerce of small, family-operated shops and self-employment is most strongly marked in such little-developed countries as the Khmer Republic and Nepal, and also in the Republic of Korea and Pakistan. Even at advanced stages of economic development, commerce tends to lag behind manufacturing and services in the increasing scale of establishments and preponderance of employees, as illustrated by the figures for England and Wales and the United States. Yet a well defined trend of growing percentages of employees in commerce as the level of economic development rises can be seen in the data. This is marked less clearly in manufacturing and still less in services, although the percentages of male workers reported as employees in service industries are noticeably low in some of the developing countries in Asia and the Far East, including India and the Republic of Korea.

72. In the data for selected groups of "traditional" and "development" industries (table 10), patterns of variation in status composition of employment related to economic development stand out more distinctly. The "traditional" character of the textile and related industries, as well as trade, is reflected by relatively low percentages of employees in these industries in several Asian and Far Eastern countries, especially India, Pakistan and Thailand among those for which measures are given. Comparing the figures for these countries with those for England and Wales and the United States, one can see what a transformation of textile and related manufactures has taken place in the process of economic development. A similar transformation of the metal and metal products industries, along with the expansion of their share in non-agricultural employment, can also be seen in these figures. Corresponding developments are less clearly marked in machinery and transportation equipment manufacturing, in personal services and in community, business and recreational (CBR) services, which tend already to be organized to a greater extent on a wage-employment basis in countries at early stages of economic development.

73. The regional picture of changes over time in status composition of employment is spotty, as measures are given only for Ceylon, Iran, Japan, Federation of Malaya, Singapore, and in the agricultural and non-agricultural sector totals for Pakistan and Thailand. In this limited view, an increasing trend of percentages of employees among male workers in the non-agricultural sector and in its component industry groups seems to have been general in the region since the Second World War.[45] The pace of the trend does not, however, appear on the whole to have been very speedy.

74. Such comparisons between countries of the status composition of employment in various industries, and of changes over time, are one means of appraising the state and progress of a country's development in each field of economic activity and indentifying fields in which a country is relatively retarded or advanced in this respect. Similar comparisons between regions and other geographical units within countries are pertinent to problems of balance in the planning of economic development. It is also possible to pick out combinations of status and industry groups which are most positively related with economic development or afford best earnings for workers, and so to compose sensitive indicators of level of development and quality of employment in the non-agricultural sector of a whole country and its parts. For example, such an indicator might be defined as the share of non-agricultural employment composed of employees in manufacturing except the textiles group, employees in personal service (except domestic service where this subgroup is separated in the census tabulations), and all workers in community, business and recreational services and the "finance" industries as defined above. Employees in transportation and all workers in communications industries might be added to this combination. Different combinations may be more appropriate to the circumstances of particular countries.

Occupational structure

75. A satisfactory regional view of features of occupational distribution of manpower related to economic development in the countries of Asia and the Far East cannot be presented here because the analysis of occupational data in the world-wide study of labour force characteristics upon which this paper is largely founded has not yet progressed beyond an exploratory stage. The data in terms of major groups of the International Standard Classification of Occupations (ISCO), assembled in the United Nations *Demographic Yearbook* and the ILO *Year Book of Labour Statistics*, are not adequate for this purpose. It is desirable to select from more detailed classifications a number of categories which can be expected to vary in certain ways as economic development proceeds. For example, while the proportionate share of professional workers in non-agricultural employment may typically expand in the course of economic development, important changes in composition of the professional group are likely to take place. The predominance of teaching (0-6) and medical (0-3,

45 Exceptions are found in the services division in Iran and Singapore, and some industry groups in Japan where the percentages were already high at the earlier census dates. In Singapore, a decrease in the percentage of male employees in the personal services group between 1957 and 1966 appears to have been brought about by a large expansion of self-employment in this industry group, located particularly in the subgroups of restaurants, hotels, and the like.

0-4, 0-5) professions may decline as other professions such as engineering and architecture (0-0) come to the fore.[46] Among sales workers, the proportions of street vendors (3-32) and working proprietors (3-0) have implications with regard to the degree of modernization of the sales function. Likewise, within the ISCO major group of craftsmen, production process workers, etc., the more "traditional" categories such as spinners, weavers, tailors, shoemakers (7-0, 7-1, 7-2) are likely to be dominant in a little-developed economy while others such as metal workers, electricians, etc. (7-3, 7-4, 7-5, 7-6) grow rapidly with expansion of modern industrial sectors.

76. The study of such occupational groups cross-classified with industry is a way of anticipating changes in occupational structure of labour demand which can be expected as industries expand or contract in the course of economic development. Cross-classifications with other demographic characteristics, including especially sex, status, and educational level, are helpful in examining economic and social implications of the occupational structure, with regard to such questions as the position of women, the shares of cottage industries in certain occupations, and the absorption of workers at different levels of education into economic activities.

Economic activities of women

77. There is a dilemma of policy as regards the development and utilization of female labour resources in countries which suffer severe problems of unemployment and underemployment. The question is sharpened by women's gains in education and by growing insistence on equal rights in employment and other spheres. Study of the patterns of women's participation in various types of economic activities as well as their over-all activity rates is pertinent to this problem. Although attention will be confined here to measures of the extent of their participation in groups of industries, their distributions by status and occupational groups are also important.

78. Tables 11 and 12 give a regional view of percentages of females among the labour force or employed workers in groups of industries, derived from the data of 1946-1966 censuses in Asian and Far Eastern countries. Both in the agricultural and non-agricultural sectors, the percentages of female workers exhibit very wide variations: for the agricultural sector, from 6 per cent in Iran to more than 50 per cent in Japan and Thailand; and for the non-agricultural sector, from 7 per cent in Pakistan to more than 40 per cent in the Philippines according to the data of the most recent censuses. Similar ranges of variation are found in the figures for the manufacturing, commerce, and service divisions in the non-agricultural sector, and for the groups of "traditional" and "development" industries. The traditions of different cultures as regards kinds of work considered to be proper for women seem to have much to do with these variations.[47] Such traditions may affect not only the actual extent of women's involvement in various industries but also the readiness of census respondents to recognize and report the fact of their employment in certain lines of work.

79. Numerous examples of differences that seem to be attributable to such cultural factors are observed when the percentages of female workers are compared for different major industry divisions in each country. Only Pakistan reports very low female representation in all four divisions listed in table 11 and only Japan reports high female percentages in all four. Agriculture has the highest percentage of females according to the most recent censuses in China (Taiwan), India, Japan, the Khmer Republic, the Federation of Malaya, Nepal and Pakistan while manufacturing stands highest in Indonesia, Iran and the Philippines, commerce in the Republic of Korea and Thailand, and services in Ceylon, Hong Kong and Singapore. Clearly, employment of women in commerce is taboo in Iran and Pakistan and it seems to be frowned upon in Ceylon, India and the Federation of Malaya also but not in Indonesia, which, like Iran and Pakistan, has a majority of Moslem population.

80. In textiles and apparel manufacturing, women are in the majority in a number of Asian and Far Eastern countries, and their share in employment in these industries is consistently greater than the average for the non-agricultural sector. In fact, very generally around the world, these are traditionally feminine industries and they continue to employ a largely feminine labour force where they have developed in highly mechanized, mass-production form, as the figures for England and Wales and the United States illustrate. Among the "traditional" industries, the personal services group also consistently shows an above-average percentage of female workers in the Asian and Far Eastern countries. Trade does not consistently conform with this pattern. Although it is a highly "traditional" field of employment, trade seems to be largely reserved for men in a number of countries in this region. Among the "development" industries, the group of community, business and recreational services is the only one where the percentages of females are generally close to the non-agricultural sector average for each country. In a majority of the countries in the region for which data are given, women are relatively underrepresented in the "finance" industries and more so in metals and machinery manufacturing. On the whole, one may say that the industry distributions of female non-agricultural workers in Asian and Far Eastern countries put them at a disadvantage in that relatively few find employment in "development" industries and more in "traditional" industries except trade.

81. The mixed trend of female activity rates indicated by the postwar censuses of countries in this region, as noted in the preceding chapter, is reflected by rising percentages of female workers among the total labour force in some countries, falling percentages in others, and relative stability in still others. An increasing trend is seen in "textiles" except in the Philippines, and without exception in community, business and recreational

46 The code numbers refer to the 1958 edition of ISCO.

47 Boserup, E., *Women's Role in Economic Development, op. cit.*

services. The trend is mixed in trade and the personal service industries.[48]

82. Whether women have been gaining on the whole a better representation in fields of relatively high-quality employment, or whether they have been relegated increasingly to fields where the rewards to labour are relatively poor, is an important question for research in countries in Asia and the Far East. To investigate this question, one should examine the classifications of status and occupations as well as industry and take account of available information on productivity and earnings in the various fields.

Components of Growth and Structural Change of Manpower

83. The interest of policy-makers and planners in manpower characteristics is not only in relative measures such as activity rates, proportionate shares of industry and occupation groups, percentages of females, and the like. Absolute numbers and measures of growth of the labour force as a whole and of industry and occupation groups, urban and rural segments, regional divisions and so on are also of major importance as they relate to production, capital inputs and needs, and the development of technology in different sectors of the economy and parts of the country. The factor which is left out of account when only relative measures are considered is population, its growth and changing geographical distribution within the country. This has prime importance under the conditions of rapid population expansion and massive migration from countryside to cities which are typical of developing countries in present times.

84. The analyst probing determinants of manpower developments must include population growth and spatial redistribution in the frame of his analysis and consider how these, as well as activity rates, proportionate shares of industry groups and so on may be affected by economic and other factors. A substantive discussion of these aspects of the demography of manpower in Asian and Far Eastern countries would lead far beyond the limits of this paper. It is appropriate, though, to outline a framework of component analysis which is useful for studying the roles of population and other factors in the growth of manpower and changes of its structure.[49]

85. The growth of the labour force can be considered as the result of natural increase in the population of working ages, augmented or moderated by other factors. Included in the concept of natural increase of the working-age population are changes in the sex-age composition as well as the growth of the total number of this population that would occur in the absence of migration. The corresponding natural increase of the labour force is that which would result if the age-specific activity rates remained constant (which is the same as to say that the rates of entry into and retirement from the labour force at each age would be unchanged). Under the heading of other factors are migration and changes in the age-specific activity rates (or entry and retirement rates). Through these, the growth of the labour force is influenced in the short run by varying conditions of employment opportunity, propensity to be employed, and capacity to work. In the longer run, supply and demand relationships may possibly affect the natural increase of the labour force through influences on fertility and mortality, but there is a lag of many years in any effects through changing fertility.

86. The concept of natural increase is applicable also to industry and occupation groups of the labour force. For each industry and occupation, natural increase can be defined as that which would result from natural increase of the population in working ages with constant age-specific rates of entry into and retirement from the industry or occupation for each sex and no shifting of workers from one industry or occupation to another. This may be augmented or diminished by industrial or occupational mobility as well as by migration and changing entry and retirement rates.

87. The natural increase of the labour force as a whole and in given industry and occupation sectors can be estimated by means of short-term projections from the data of a census with the use of appropriate life-tables. Differences between such estimates of natural increase and the actual increases recorded between censuses are estimates of the net effects of other factors. The latter may be divided into components of migration, changing rates of entry and retirement, and inter-industry or interoccupation mobility, by applying methods of cohort analysis.

88. The typical situation of developing countries in recent times has been one of high and rising rates of natural increase in working-age population and labour force, offset to some extent by decreasing male activity rates and in some cases also by decreasing female rates, although the trend of the latter has been upward in some countries. In Iran for example, the annual rate of natural increase of the male labour force is estimated at 1.9 per cent as of the 1956 census and 3.1 per cent as of the 1966 census, and an average of 2.2 per cent annually for the decade between the censuses. The recorded increase between 1956 and 1966 corresponds to an annual rate of 1.8 per cent, and since migration was not an impor-

48 It is of interest to compare the observations made here with those of Collver A., and Langlois, E., "The female labour force in metropolitan areas: an international comparison", *Economic Development and Cultural Change*, July 1962.

49 The use of the analytical framework described below has been illustrated with census data for several countries in Durand, J.D., and Miller, A.R., "Processes of growth and structural change of the labour force under pressure of expanding population", paper presented at the *General Conference of IUSSP*, London, 1969. On the relevant methodology, see Durand, J.D., and Holden, K.C., *Methods for Analyzing Components of Change in Size and Structure of the Labour Force* (University of Pennsylvania, Population Studies Centre, Analytical and Technical Reports, No.8), Philadelphia, 1969. For results of a somewhat different kind of component analysis applied to the statistics of Japan and Panama, see Jaffe, A.J., and Froomkin, J.N., "Economic development and jobs—a comparison of Japan and Panama, 1950 to 1960", *Estadistica*, September 1966.

tant factor, the difference of - 0.4 per cent is an estimate of the effect of decreasing male age-specific activity rates upon the growth rate of the male labour force.[50]

89. In some countries, natural increase is stronger in the rural and agricultural sectors than in the urban and non-agricultural sectors of the labour force, while in other countries opposite differences are found. In either case, it is mainly by migration from rural to urban areas and shifts of workers from agriculture to non-agricultural employment that the almost universal trend of increasing relative shares of the urban and non-agricultural sectors in total manpower is brought about. For example in Iran, between 1956 and 1966, the rate of natural increase of male labour force was estimated at about 2.2 per cent both in the rural and urban sectors, but the recorded rate of actual increase was 3.6 per cent in the urban and only 0.9 per cent in the rural. As the effects of declining activity rates were approximately equal in the urban and the rural population, the difference was due almost entirely to rural-urban migration.

90. Where the age distribution of the labour force is much skewed toward the older ages, the natural increase may be negative as retirements exceed entries and so the labour force will decrease unless the younger cohorts are augmented by in-migration or, in the case of an occupation or industry group, by workers transferring in from other occupations or industries. An example is found in the male labour force in agriculture in Japan. Estimated natural increase rates for this group dropped from 1.6 per cent as of 1955 to 0.7 per cent as of 1960 and -0.6 per cent as of 1965, reflecting the progressive ageing of the male labour force on Japanese farms. With a heavy drain of transfers of male workers to the non-agricultural sector, the recorded rates of actual increase in agriculture were strongly negative: -3.2 per cent during 1955-1960 and -3.9 per cent during 1960-1965.

91. By such analysis of components of manpower growth and structural change, it is possible to examine the implications of targets as regards the size or growth of labour force in certain sectors which may be proposed for an economic plan. Thus if it is desired to hold the size of the agricultural labour force constant or allow it to grow at no more than a certain rate, the necessary rate of transfer of workers from agriculture to other employments can be calculated. This will vary with the age structure and natural increase of the labour force in agriculture and the trends of entry and retirement rates. Or if a target is set for expansion of labour force in a certain occupational group to meet requirements of the development plan, the required rates of entry of young workers into that occupational group or transfer of workers from other groups can be estimated.

92. By studying how variations of the different components are associated with one another and with other variables, as observed in different countries, parts of countries and periods of time, the analyst can gain insight into determinants of manpower trends. For example, it is possible to study in this way such questions as whether pressures connected with natural increase of the labour force in rural and agricultural sectors seem to play an important part in governing the rates of migration to urban areas and transfer to non-agricultural employments, and whether they appear to have any bearings on the development of agricultural technology, extension of areas of cultivated land, or rates of underemployment in agriculture. Similar questions with regard to effects of the influx of manpower into urban and non-agricultural labour markets can also be examined in this analytical framework.

50 These and other estimates for Iran and Japan cited in the following paragraphs are from the paper by J.D. Durand and A.R. Miller *(op. cit.)*

Annex 1

CLASSIFICATION OF INDUSTRIES

Classification worked out in the Population Studies Centre, University of Pennsylvania, for use in comparative international studies of labour force

Group			1958 ISIC Codes
A	Agriculture, forestry, hunting and fishing		0
B	Mining and quarrying		1
C	Manufacturing		2-3
	C-1	Food and beverage industries	20-21
	C-2	Textiles, footwear and apparel industries	23-24
	C-3	Metal and metal products industries, except machinery and transportation equipment	34-35
	C-4	Machinery and transportation equipment	36-38
	C-5	Other manufacturing	22, 25-33, 39
D	Construction		4
E	Electricity, gas, water and sanitary services		5
F	Commerce		6
	F-1	Wholesale and retail trade	61
	F-11	Wholesale trade	611
	F-12	Retail trade	612
	F-2	Other commerce	62-64
G	Transportation, storage and communication		7
	G-1	Transport	71
	G-2	Storage and communication	72-73
H	Services		8
	H-1	Government services	81
	H-11	Armed forces	
	H-12	Other government services	
	H-2	Community, business and recreation services	82-84
	H-21	Education services	821
	H-22	Medical and other health services	822
	H-23	Other community, business and recreation services	823-829, 83-84
	H-3	Personal services	85
	H-31	Domestic service	851
	H-32	Restaurants, cafés, taverns and other drinking and eating places	852
	H-33	Other personal services	853-859
X	Activities not adequately described		9

Annex II

TABLES 1—12

Note: Figures are provisional, pending completion of the compilation, verification, and analysis of the relevant data from the censuses of the countries represented.

Table 1.

Crude, standardized, and refined activity rates and age-structure indices: censuses of 1946-1966 in fifteen countries of Asia and the Far East.

Country	Census year	Crude Activity Rate	Standardized Activity Rates			Refined Activity Rates			Age-structure Index
			Both Sexes, All Ages	Males 10 and Over	Females 10 and Over	Both Sexes, 10 and Over	Males 10 and Over	Females 10 and Over	
		(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)
Ceylon	1946	39.2	37.8	76.6	25.3	52.4	76.1	24.8	104
	1953	36.8	37.0	72.4	27.2	51.4	72.8	26.7	99
	1963	32.6	34.1	71.5	20.3	45.9	69.3	20.1	96
China (Taiwan)	1956	33.2	35.6	77.3	18.6	50.4	79.8	20.2	93
Hong Kong	1961	38.7	39.6	73.4	33.2	54.9	76.5	32.3	98
India	1951	39.1	39.5*	72.8*	31.8*	53.0	72.8	31.8	99*
	1961	43.0	44.9	81.4	39.4	61.2	81.1	39.9	96
Indonesia	1961	35.9	40.0	78.3	29.5	54.1	79.8	29.4	90
Iran	1956	32.0	34.5	83.8	9.2	47.4	83.9	9.2	93
	1966	30.2	33.9	79.2	12.3	45.9	77.0	12.5	89
Japan	1950	44.0	43.9	74.7	43.4	58.7	74.4	43.9	100
	1955	45.1	43.4	73.2	43.8	58.4	73.4	44.1	104
	1960	47.2	43.4	72.7	44.1	57.8	72.4	44.0	109
	1965	49.1	42.5	71.3	43.1	58.7	73.6	44.6	116
Khmer Republic	1962	43.6	47.7	76.0	52.3	62.8	73.0	52.6	91
Korea, Republic of	1955	38.2	41.7	69.7	42.5	53.8	66.1	41.9	92
	1960	31.0	34.4	68.3	24.4	44.2	65.6	24.4	90
Malaya, Federation of	1947	38.9	40.0*	77.0*	26.9*	53.8	77.0	26.9	97*
	1957	34.5	37.8	75.7	26.1	51.5	74.8	26.2	91
Nepal	1952/54	50.0	51.1*	83.7*	54.1*	68.6	83.7	54.1	98*
	1961	49.1	51.0	84.2	53.1	68.7	83.6	54.4	96
Pakistan	1951	31.6	32.9*	77.2*	5.7*	44.2	77.2	5.7	96*
	1961	33.5	36.4	84.5	13.7	51.6	84.4	13.8	92
Philippines	1948	27.0	31.3	68.1	16.2	39.1	62.5	16.1	86
	1960	32.0	37.2	75.3	24.9	47.8	71.1	24.4	96
Singapore	1957	33.2	34.2	73.5	18.8	49.9	76.6	19.2	97
	1966	29.9	33.5	69.6	20.8	42.3	64.4	19.8	89
Thailand	1947	53.6	56.4*	79.6*	72.0*	75.8	79.6	72.0	95*
	1960	53.2	57.7	80.6	74.7	77.5	79.6	75.3	92

* Estimated.

Table 2.

Components of variation of labour force dimensions in Asian and Far Eastern countries compared with countries throughout the world classified by annual energy consumption per head: 1956-1966 cross-section of census data

Item	Asian and Far Eastern Countries	Countries in all Regions, by Annual Energy Consumption (kilogrammes of coal equivalent) per Head				
		Total	Under 500	500-999	1,000-1,999	2,000 and Over
Number of countries	15	93	51	13	9	20
Crude activity rate						
Median value	34.5	38.5	34.1	38.4	45.7	40.0
Distribution of countries, by level:						
Under 30.0	—	11	10	—	1	—
30.0-34.9	8	25	17	5	1	2
30.0-39.9	2	18	5	3	2	8
40.0-44.9	2	17	10	4	—	3
45.0-49.9	2	13	3	—	3	7
50.0 and over	1	9	6	1	2	—
Male standardized activity rate, ages 90 years or over						
Median value	76.0	76.2	78.3	76.2	72.7	73.8
Distribution of countries by level:						
Under 70.0	1	11	3	—	2	6
70.0-74.9	4	27	10	5	5	7
75.0-79.9	6	31	16	7	1	7
80.0-84.9	5	16	15	1	—	—
85.0 and over	—	8	7	—	1	—
Female standardized activity rate, ages 90 years or over						
Median value	26.1	27.4	24.9	24.9	41.0	30.9
Distribution of countries by level:						
Under 10.0	—	7	7	—	—	—
10.0-19.9	4	20	14	4	1	1
20.0-29.9	5	22	8	3	3	8
30.0-39.9	2	16	6	4	—	6
40.0-54.9	3	18	8	2	3	5
55.0-69.9	—	5	3	—	2	—
70.0 and over	1	5	5	—	—	—
Age-structure index						
Median value	92	93	90	97	107	105

Table 3.

Age-specific activity rates of males and females: censuses of 1946-1966 in fifteen countries of Asia and the Far East

Sex and age (years)	Ceylon			China (Taiwan)	Hong Kong	India	Indonesia	Iran		Japan	
	1946	1953	1963	1956	1961	1961	1961	1956	1966	1950	1955
Males											
15-19	59.2	46.5	46.3	77.5	54.3	71.4	66.7	80.7	68.0	61.7	54.3
20-24	83.3	81.4	84.2	91.2	89.2	93.0	87.2	94.2	90.8	90.5	88.1
25-29	95.0	94.7	95.2	96.1	97.6	97.2	93.2	97.9	96.6	95.5	96.2
30-34	99.3	95.1	96.5	96.4	98.0	97.5	95.8	98.7	97.7	96.5	97.0
35-39	98.4	95.8	96.6	96.8	98.2	97.8	96.9	98.9	97.9	97.8	97.3
40-44	99.0	95.3	96.0	95.9	98.4	97.6	96.6	98.9	97.5	97.6	97.4
45-49	97.5	95.4	95.6	93.6	97.7	97.4	96.3	98.3	95.9	96.3	97.0
50-54	92.5	93.8	92.8	84.4	95.7	96.6	94.8	97.2	91.2	93.9	95.5
55-59	88.7	91.2	87.7	67.9	89.9	93.8	92.4	95.5	86.4	90.4	91.1
60-64	88.7	84.2	76.4	43.6	78.1	87.5	87.2	91.5	74.1	80.3	82.4
65-69	88.1	77.7	67.9	25.4	61.3	80.6	81.7	85.4	64.0	69.6	70.8
70-74	81.5	70.3	51.7	12.5	41.4	69.5	74.3	75.9	43.8	52.2	52.9
75 and over	62.5	53.3	32.8	5.3	18.5	49.5	61.7	58.6	28.5	33.0	33.4
Gross years of active life[a]	57.4	54.2	51.4	46.6	51.2	58.0	57.4	60.1	53.4	53.1	52.8
Females											
15-19	24.3	27.7	21.7	40.9	47.9	40.7	30.6	12.1	15.5	54.8	50.1
20-24	23.8	28.7	29.4	26.8	51.1	43.2	27.4	9.3	14.2	64.0	68.2
25-29	26.3	28.6	27.8	16.4	32.6	44.8	26.6	8.6	12.8	48.3	51.8
30-34	28.8	30.1	25.2	14.9	35.1	46.7	28.2	8.7	12.1	48.6	49.6
35-39	31.1	32.2	26.0	14.8	37.0	49.1	31.5	9.4	12.3	51.6	53.4
40-44	33.7	34.6	26.2	13.3	39.1	50.1	35.5	10.1	12.5	53.7	55.5
45-49	33.4	35.6	26.3	10.7	43.6	49.3	39.1	10.3	12.1	52.5	54.4
50-54	31.2	35.8	21.1	7.3	40.2	45.0	40.6	10.0	10.8	51.0	51.3
55-59	28.7	34.1	17.9	4.7	32.0	39.2	40.2	9.3	8.8	44.8	45.7
60-64	26.8	30.1	11.3	2.5	23.5	29.7	38.4	7.9	7.6	37.9	38.4
65-69	24.8	28.1	7.8	1.5	15.8	23.8	34.2	6.9	5.7	29.0	29.5
70-74	21.7	24.0	5.6	0.6	8.0	15.4	28.9	5.8	4.8	22.2	20.6
75 and over	15.6	17.4	4.1	0.2	1.7	9.7	20.3	4.6	2.8	10.9	10.0
Gross years of active life[a]	18.1	19.8	12.7	9.0	20.7	25.5	21.9	6.1	7.3	28.7	29.0

[a] In ages 10 years and over.

Table 3 (continued)

Japan		Khmer Republic	Korea Republic of		Malaya, Federation	Nepal	Pakistan	Philippines		Singapore		Thailand
1960	1965	1962	1955	1960	of 1957	1961	1961	1948	1960	1957	1966	1960
51.6	39.1	58.0	48.2	45.2	60.0	91.6	76.7	34.4	59.2	59.4	44.1	76.8
87.9	87.4	87.9	72.1	75.9	92.7	96.5	89.8	71.7	80.8	92.3	91.7	88.2
96.9	98.0	97.4	88.6	90.8	97.5	98.2	95.4	86.6	91.3	98.0	97.5	96.0
97.8	97.9	98.4	95.2	95.6	97.8	98.3	95.6	92.8	94.5	98.6	98.9	97.5
97.7	97.9	99.1	96.3	96.3	97.7	98.7	95.6	95.2	95.5	98.5	98.7	97.8
98.0	98.0	98.8	96.5	96.9	97.2	98.3	95.6	96.5	95.4	98.0	97.7	97.8
97.1	97.9	98.3	95.7	96.4	96.2	98.0	95.9	95.7	95.1	96.9	95.8	97.3
96.0	97.0	96.5	93.8	91.1	93.7	97.5	95.7	95.0	93.6	93.5	91.9	96.1
90.5	92.8	91.0	90.5	88.4	88.4	94.9	93.2	93.4	91.7	85.1	79.0	92.5
82.5	84.5	78.1	80.3	71.0	81.3	79.1	90.8	83.6	86.4	66.9	58.5	82.9
70.2	71.1	61.8	68.3	50.7	70.0	63.2	86.9	70.7	79.2	49.8	39.4	67.8
52.3	52.0	45.1	52.8	36.4	57.5	48.8	81.7	61.4	71.5	31.0	23.2	49.0
30.0	29.0	31.1	38.3	18.9	47.8	41.3	71.6	49.3	54.2	17.4	18.0	26.2
52.4	52.1	53.0	51.2	47.9	54.4	56.9	60.7	51.7	55.4	49.6	46.8	54.9
49.7	38.2	66.9	35.0	25.5	27.9	77.2	12.6	18.7	29.6	23.4	25.5	84.6
69.4	69.5	63.7	50.5	30.7	31.2	69.1	14.2	25.5	28.9	22.9	40.9	86.6
50.1	46.8	58.4	51.8	26.6	27.7	64.6	15.4	18.4	26.1	16.4	25.9	84.9
51.3	48.3	61.3	54.9	29.0	30.4	61.4	15.6	18.2	26.3	17.3	21.0	85.2
55.1	57.6	61.3	59.2	32.9	34.1	59.0	15.8	19.2	26.8	20.8	19.2	86.6
56.7	62.2	61.3	61.4	34.8	35.3	55.9	16.1	19.3	27.9	26.2	21.9	88.3
56.8	61.9	61.3	62.4	35.2	36.3	53.9	16.8	18.7	28.9	30.1	20.4	86.7
51.7	57.8	58.0	59.3	32.8	33.7	51.3	16.3	17.9	29.0	28.8	24.4	83.6
46.7	50.0	49.5	52.2	29.3	29.4	45.9	14.0	15.0	28.3	24.7	23.2	77.6
39.1	39.6	32.4	34.8	16.8	22.3	33.4	12.6	12.9	25.5	17.1	18.5	61.8
30.6	27.5	22.7	24.0	12.0	15.6	25.5	11.4	10.9	23.7	10.5	11.7	42.6
21.1	17.1	14.3	15.3	7.9	11.4	16.0	9.9	6.7	21.5	4.7	6.4	26.6
10.2	6.8	7.8	10.8	5.4	6.8	10.9	8.2	1.6	19.1	2.0	1.9	8.0
29.5	29.2	32.4	28.9	16.2	17.5	32.4	9.4	10.4	17.6	12.5	13.1	47.4

Table 4.

Urban and rural crude and standardized activity rates and age structure indices: censuses of 1946-1966 in seven countries of Asia and the Far East

Country	Census Year	Crude Activity Rates		Male Standardized Activity Rates		Female Standardized Activity Rates		Age-structure Index	
		Urban	Rural	Urban	Rural	Urban	Rural	Urban	Rural
Ceylon	1963	33.0	32.6	68.8	72.3	13.8	21.8	108	93
India	1961	34.4	44.9	71.7	83.7	16.0	44.2	106	94
Indonesia	1961	32.7	36.5	69.6	80.1	23.7	30.6	94	89
Iran	1956	31.8	32.1	78.5	86.7	9.4	9.2	98	90
	1966	28.3	31.5	72.2	84.8	9.9	14.0	93	86
Japan	1950	39.1	47.0	70.6	76.9	29.6	52.1	105	98
	1955	43.0	47.7	71.6	75.3	36.7	53.3	107	100
	1960	46.1	49.2	71.9	74.1	38.6	54.0	112	103
	1965	48.9	49.8	71.1	72.0	39.8	50.4	119	109
Korea, Republic of	1960	27.0	32.5	60.4	71.5	17.0	27.3	94	89
Pakistan	1961	31.1	33.8	73.2	86.6	5.0	15.0	107	90

[a] Ages 10 and over.

Table 5.

Urban and rural age-specific activity rates of males and females: censuses of 1946-1966 in seven countries of Asia and the Far East

Sex and age (years)	Ceylon 1963		India 1961		Indonesia 1961		Iran 1956		Iran 1966	
	Urban	Rural	Urban	Rural	Urban	Rural	Urban	Rural	Urban	Rural
Males										
15-19	40.8	47.8	45.7	78.2	45.8	71.6	61.9	92.0	48.6	84.7
20-24	80.3	85.5	85.0	95.4	79.4	89.2	89.1	97.7	85.9	96.3
25-29	93.4	95.8	96.8	97.3	91.8	93.4	96.6	98.5	94.7	98.0
30-34	95.2	96.9	97.6	97.5	94.5	96.0	98.2	99.0	96.7	98.3
35-39	95.4	97.0	97.7	97.8	96.1	97.0	98.6	99.1	97.2	98.2
40-44	95.0	96.3	96.8	97.8	96.1	96.8	98.4	99.1	96.7	98.0
45-49	93.8	96.1	95.7	97.8	95.3	96.5	97.8	98.6	94.6	96.8
50-54	91.2	93.3	92.1	97.6	90.8	95.4	96.2	97.7	87.6	93.4
55-59	82.9	88.9	81.5	96.3	82.3	93.9	93.3	96.4	81.9	89.1
60-64	66.7	78.6	70.5	90.7	68.3	89.9	88.7	92.7	69.5	76.8
65-69	57.3	70.3	58.9	84.6	62.1	84.4	82.5	86.6	55.3	68.9
70-74	46.1	52.8	48.9	73.0	53.5	77.0	71.2	77.2	45.2	43.1
75 and over	30.8	33.1	35.6	51.8	42.7	64.1	48.8	61.8	32.4	26.5
Gross years of active life b/	48.9	52.0	50.7	59.5	50.3	58.5	57.1	61.5	50.2	55.9
Females										
15-19	10.6	24.4	11.9	47.2	24.2	32.1	10.0	13.3	9.8	19.8
20-24	20.2	31.5	16.1	49.4	25.3	27.9	8.2	9.8	12.1	15.6
25-29	20.2	29.5	17.3	50.8	24.7	26.9	8.0	8.9	10.7	14.0
30-34	18.0	26.8	20.2	52.3	25.8	28.6	8.5	8.7	9.7	13.6
35-39	16.5	28.1	22.5	54.5	28.5	32.0	9.9	9.1	10.1	13.8
40-44	16.3	28.5	25.3	54.9	31.8	36.1	10.8	9.7	11.3	13.2
45-49	17.0	28.4	24.0	53.9	33.7	39.9	11.6	9.6	11.0	12.8
50-54	15.2	22.6	22.2	49.2	32.6	41.7	11.8	9.1	11.0	10.6
55-59	13.1	19.0	17.8	42.9	29.5	41.9	11.4	8.4	8.7	8.9
60-64	9.7	11.7	15.3	32.4	25.0	40.5	10.4	6.8	9.0	6.7
65-69	6.9	8.1	11.4	25.9	21.3	36.3	9.2	6.0	7.8	4.6
70-74	5.6	5.6	8.7	16.4	17.3	30.9	8.3	4.8	6.2	4.1
75 and over	4.2	4.1	4.5	10.6	12.3	21.7	7.1	3.6	3.0	3.0
Gross years of active life b/	8.9	13.6	11.1	28.4	16.9	22.7	6.7	5.8	6.5	7.9

[a] Data are available also for 1955.

[b] In ages 10 years and over.

Table 5. (Continued)

Japan						Korea, Republic of		Pakistan	
1950		1960		1965		1960		1961	
Urban	Rural	Urban	Rural	Urban	Rural	Urban	Rural	Urban	Rural
54.1	66.3	52.3	49.9	40.8	34.7	29.5	52.5	58.8	80.6
84.8	94.5	85.2	94.9	85.6	94.0	55.4	85.3	81.9	91.9
94.2	96.4	96.4	97.9	97.8	98.7	83.8	93.6	92.4	96.0
95.6	97.1	97.5	98.2	97.9	98.2	94.5	96.2	92.6	96.2
98.0	97.7	97.5	98.0	97.8	98.2	96.1	96.4	92.7	96.2
97.7	97.6	97.7	97.7	98.0	98.2	95.9	97.4	92.6	96.2
95.2	97.0	97.1	97.2	97.8	98.0	94.4	97.1	92.6	96.4
92.5	94.8	96.0	96.2	97.0	97.0	90.1	91.4	90.7	96.4
86.0	92.8	89.8	91.5	92.6	93.3	76.9	91.7	82.1	94.7
70.9	85.0	79.7	86.5	83.0	86.9	48.5	76.7	77.2	92.7
54.8	76.0	65.8	76.1	69.1	74.2	35.0	53.8	68.7	89.5
34.3	58.9	47.0	58.7	49.6	55.5	22.4	38.8	54.9	85.0
20.9	36.0	25.9	34.4	27.6	30.7	15.7	19.4	40.0	75.8
49.0	54.9	51.4	53.9	51.7	52.9	42.1	49.8	51.9	62.1
48.2	58.8	50.3	48.4	40.1	33.4	28.6	23.9	2.7	14.3
52.4	71.9	66.4	76.0	68.4	72.8	31.8	30.2	4.4	15.7
31.1	60.7	42.5	66.2	42.5	59.0	14.6	32.1	5.4	16.8
29.7	61.9	42.0	69.0	41.8	64.2	14.2	36.1	5.7	17.1
33.7	63.6	45.6	72.2	50.4	73.0	17.5	39.9	6.2	17.1
34.4	66.3	47.6	72.9	55.5	75.9	19.7	40.6	7.0	17.4
32.2	65.4	47.7	72.1	55.6	74.1	27.6	40.2	8.2	17.9
30.0	63.4	42.5	66.8	51.7	69.1	18.1	37.4	7.8	17.4
25.1	55.5	37.3	61.3	44.1	60.7	14.1	33.8	6.6	14.9
18.6	47.5	30.2	52.1	34.1	49.1	8.1	19.0	5.9	13.5
13.9	36.0	22.6	41.7	22.9	34.8	5.5	13.8	5.4	12.2
10.2	27.3	14.5	29.6	14.0	21.7	3.7	9.0	4.9	10.5
6.4	12.6	7.0	14.1	6.6	7.2	2.4	6.1	4.3	8.7
18.4	34.9	24.8	37.2	26.4	34.8	10.2	18.3	3.8	10.2

Table 6.

Numbers and percentage shares of workers in the agricultural sector and ratios of agricultural workers to hectares of agricultural land and cropland: censuses of 1946-1966 in fifteen countries of Asia and the Far East

Country	Census Year	Thousands of Workers in Agricultural Sector			Percentage Share of Agricultural Sector in Total Employment			Male Agricultural Workers per 100 Ha of Cropland
		Both sexes	Males	Females	Both sexes	Males	Females	
Ceylon	1953	1,584	1,147	437	52.9	50.6	60.3	75
	1963	1,693	1,273	421	52.9	50.1	64.8	....
China (Taiwan)	1956	1,501	1,187	314	55.6	53.8	63.8	....
Hong Kong	1961[a]	88	56	31	7.4	6.6	9.2	....
India	1951[a]	100,507	68,529	31,978	72.1	69.2	79.1	....
	1961[a]	137,581	88,604	48,977	72.9	68.6	82.3	52
Indonesia	1961	23,516	17,372	6,144	71.9	73.0	69.0	98
Iran	1956	3,326	3,182	143	56.3	59.7	25.0	27
	1966	3,169	2,965	203	46.2	49.8	22.3	25
Japan	1950	17,208	8,786	8,422	48.3	40.2	61.2	172
	1955	16,111	8,043	8,068	41.0	33.7	52.5	159
	1960	14,239	6,859	7,381	32.6	25.8	43.1	112
	1965[a]	11,747	5,694	6,053	24.7	19.6	32.6	94
Khmer Republic	1962[a]	2,008	1,095	913	80.3	75.6	86.9	....
Korea, Republic of	1960	4,632	3,224	1,408	65.9	64.4	69.6	170
Malaya, Federation of	1947	1,241	894	347	66.2	62.2	79.1	70
	1957	1,245	843	401	58.5	52.6	76.7	47
Nepal	1952/54	3,883	2,257	1,626	93.5	91.8	96.1	64
	1961[a]	4,041	2,352	1,688	93.8	91.7	96.9	....
Pakistan	1951[a]	17,125	16,096	1,028	76.5	76.2	79.6	....
	1961	22,644	19,425	3,219	75.6	74.1	85.7	85
Philippines	1948[a]	3,236	2,826	411	62.2	68.6	38.0	62
	1960	5,162	4,397	765	65.0	73.4	39.1	64
Singapore	1957[a]	40	26	14	9.2	7.4	16.8	....
	1966[a]	19	15	4	3.5	3.4	3.9	....
Thailand	1947[a]	7,623	3,823	3,800	84.8	81.7	88.2	70
	1960	11,332	5,575	5,757	82.4	78.6	86.5	56

[a] Data refer to total or experienced labour force, including unemployed workers. (For other censuses, the data refer to employed workers.)

Table 7.

Percentage share of manufacturing, commerce and service divisions in non-agricultural employment: censuses of 1946-1966 in fifteen countries of Asia and the Far East and two western industrialized countries

Country	Census Year	Percentage of Non-agricultural Total			Country	Census Year	Percentage of Non-agricultural Total		
		Manu-facturing	Commerce	Services			Manu-facturing	Commerce	Services
Ceylon	1953	21.5	17.5	34.2	Malaya, Federation of	1947	19.9	27.3	31.1
	1963	20.8	19.1	32.9		1957	15.4	22.1	36.3
China (Taiwan)	1956	27.2	16.7	35.3	Nepal	1952/54	29.9	21.5	35.6
Hong Kong	1961[a]	46.9	11.9	24.0		1961[a]	30.3	17.7	30.7
India	1951[a]	32.8	18.8	36.6	Pakistan	1961	33.6	20.2	30.9
	1961[a]	35.0	14.7	32.8	Philippines	1948[a]	23.0	17.3	40.4
Indonesia	1961	20.2	23.9	33.7		1960	30.1	18.2	32.7
Iran	1956	31.6	13.8	25.4	Singapore	1957[a]	16.8	30.6	31.4
	1966	34.4	15.0	25.2		1966[a]	19.8	24.4	36.7
Japan[b]	1950	33.4	21.4	23.6	Thailand	1947[a]	14.3	51.6	20.0
	1960	34.2	23.0	23.7		1960	19.5	32.3	27.1
	1965[a]	33.9	23.8	23.3	England and Wales	1961	37.7	18.5	24.1
Khmer Republic	1962[a]	13.9	29.3	38.1					
Korea, Republic of	1960	19.9	24.5	39.2	United States	1960	29.5	20.5	30.6

[a] Data refer to total or experienced labour force, including unemployed workers.
[b] Data are also available for 1955.

Table 8.

Percentage share of selected group of "traditional" and "development" industries in non-agricultural employment: censuses of 1946-1966 in eleven countries of Asia and the Far East and two western industrialized countries

Count y	Census Year	"Traditional" Industries				"Development" Industries				
		Total	Textiles	Trade	Personal Services	Total	Metals	Machin-ery	Finance	CBR Services
Ceylon	1953	37.3	6.6	16.5	14.2	15.0	1.0	1.3	1.0	11.7
Hong Kong	1961[a]	43.4	19.0	10.4	14.0	16.7	4.6	3.8	1.5	6.8
India	1951[a]	57.8	14.2	17.9	25.7	9.6	2.3	1.0	0.9	5.4
	1961[a]	47.5	14.1	14.2	19.2	11.3	2.3	1.6	0.5	6.9
Iran	1956	45.3	18.8	13.2	13.3	8.1	2.3	0.9	0.6	4.3
	1966	45.1	21.0	13.8	10.3	11.0	2.2	1.5	1.1	6.2
Japan[b]	1950	33.7	7.7	19.4	6.6	21.3	3.1	6.7	2.0	9.5
	1960	35.7	7.2	20.3	8.2	25.4	4.2	7.8	2.7	10.7
	1965[a]	35.0	6.6	20.6	7.8	27.4	4.4	8.6	3.2	11.2
Korea, Republic of	1960	51.5	7.2	23.6	20.7	12.6	1.7	1.3	0.9	8.7
Malaya, Federation of	1947	43.2	3.0	26.0	14.2	10.6	1.3	2.5	1.3	5.5
	1957	35.2	2.9	21.4	10.9	14.4	1.0	2.3	0.8	10.3
Pakistan	1961	49.7	13.4	19.8	16.5	12.1	2.5	1.5	0.4	7.7
Philippines	1960	45.5	12.3	17.3	15.9	10.4	0.8	0.4	0.8	8.4
Singapore	1957[a]	47.3	3.5	28.8	15.0	17.6	0.7	3.3	1.8	11.8
	1966[a]	40.8	3.4	21.7	15.7	20.1	1.8	4.2	2.6	11.5
Thailand	1960	46.0	5.6	31.9	8.5	10.2	0.6	1.4	0.4	7.8
England and Wales	1961	29.6	6.3	15.9	7.4	31.3	5.2	13.2	2.6	10.3
United States	1960	29.2	3.9	16.2	9.1	32.2	4.1	9.3	4.4	14.4

[a] Data refer to total or experienced labour force, including unemployed workers.
[b] Data are also available for 1955.

Table 9.

Percentages of employees among male workers in all industries, agricultural sector, and major divisions of the non-agricultural sector: censuses of 1946-1966 in fourteen countries of Asia and the Far East and two western industrialized countries

Country	Census Years	All Industries	Agri-cultural Sector	Non-agricultural Sector			
				Total	Manu-facturing	Commerce	Services
Ceylon	1953	59.4	48.8	70.3	62.8	39.6	81.0
	1963	60.6	44.7	76.5	73.3	53.0	83.8
China (Taiwan)	1956	38.1	10.8	69.9	71.2	26.3	84.2
Hong Kong	1961[a]	80.3	18.6	84.7	83.6	67.6	90.5
India	1961[a]	29.7	21.4	47.8	42.6	24.9	59.1
Iran	1956	44.2	28.9	66.9	68.0	20.6	85.9
	1966	47.5	24.7	70.0	71.6	27.5	83.1
Japan[b]	1950	47.5	7.5	73.8			
	1960	61.6	8.5	80.2	85.7	60.4	82.9
	1965	68.5	8.6	83.1	87.9	68.1	83.4
Khmer Republic	1962[a]	17.4	2.9	62.0	58.2	14.5	95.2
Korea, Republic of	1960	24.4	7.9	54.3	63.9	15.8	65.7
Malaya, Federation of	1947	48.0	35.9	66.4	63.4	38.9	85.7
	1957	56.6	41.4	73.5	68.0	43.0	87.4
Nepal	1961[a]	20.1	16.6	60.1	46.7	12.2	93.6
Pakistan	1951[a]	16.0	9.7[c]	36.3[c]			
	1961	22.0	15.5	40.7	35.8	15.3	59.5
Philippines	1960	27.4	11.5	71.1	58.5	39.5	91.5
Singapore	1957[a]	71.8	31.1	75.5	78.3	56.0	88.3
	1966[a]	75.1	24.7	77.4	83.0	62.9	82.7
Thailand	1947[a]	15.9	6.5[c]	56.0[c]			
	1960	16.9	4.1	63.3	58.8	21.3	86.3
England and Wales	1961	90.8	53.8	92.5	98.5	81.1	87.6
United States	1960	84.4	34.9	89.3	95.8	80.4	86.5

[a] Data refer to total or experienced labour force, including unemployed workers.

[b] Data are also available for 1955.

[c] Data for the agricultural sector refer to the occupational group of farmers, fishermen, etc.; those for the non-agricultural sector to the remainder of the labour force or employed workers.

Table 10

Percentages of employees among male workers in selected groups of "traditional" and "development" industries: censuses of 1946-1966 in eight countries of Asia and the Far East and two western industrialized countries

Country	Census Year	"Traditiynal" Industries			"Development" Industries			
		Textiles	Trade	Personal Services	Metals	Machinery	Finance	CBR services
Ceylon	1953	58.4	38.9	75.2	43.8	78.6	53.9	73.8
India	1961[a]	41.7	22.3	32.4	49.6	75.6	65.7	75.9
Iran	1956	65.7	18.0	80.0	56.4	67.9	83.0	70.5
Japan[b]	1960	70.4	55.9	51.0	91.2	92.0	91.9	86.2
	1965	71.5	64.5	54.5	90.6	93.8	90.9	86.8
Malaya, Federation of	1957	47.5	41.7	61.2	77.7		78.3	89.4
Pakistan, eastern Sector[c]	1961	45.5	.....	.....	34.9	65.9	91.0	.....
Western Sector[c]	1961	38.5	.....	.....	35.4	74.9	94.1	.....
Philippines	1960	52.3	35.0	82.5	58.5	88.3	96.1	85.4
Singapore	1957[a]	52.7	54.1	78.8	81.8	86.1	87.5	91.1
	1966[a]	53.4	59.6	54.0	90.8	86.9	91.0	94.5
Thailand	1960	36.6	19.6	40.6	49.1	67.4	94.7	91.4
England and Wales	1961	96.4	78.6	72.2	98.7	99.5	95.3	82.2
United States	1960	96.8	79.5	71.0	98.9	93.0	84.7	81.8

[a] Data refer to total or experienced labour force, including unemployed workers.

[b] Data are also available for 1955.

[c] Data from G. Farooq, *Dimensions and Structure of Labour Force*, *op. cit.*,

Table 11

Percentages of females among all workers in all industries, agricultural sector and major divisions of the non-agricultural sector: censuses of 1946-1966 in fifteen countries of Asia and the Far East and two western industrialized countries

Country	Census Years	All Industries	Agri-cultural Sector	Non-agricultural Sector			
				Total	Manu-facturing	Commerce	Services
Ceylon	1953	24.2	27.6	20.4	29.9	11.8	24.4
	1963	20.5	24.8	15.7	20.5	7.0	25.5
China (Taiwan)	1956	18.2	20.9	14.8	16.6	13.4	19.4
Hong Kong	1961[a]	28.7	35.8	28.1	30.5	16.3	40.3
India	1951[a]	29.0	31.8	21.7	24.5	15.8	24.9
	1961[a]	31.5	35.6	20.6	27.1	10.8	21.0
Indonesia	1961	27.2	26.1	30.0	37.6	31.1	34.1
Iran	1956	9.7	4.3	16.7	34.1	1.0	21.5
	1966	13.3	6.4	19.2	40.1	1.6	18.3
Japan[b]	1950	38.6	48.9	29.0	28.9	36.0	40.3
	1960	39.2	51.8	33.0	33.3	38.4	44.9
	1965	39.0	51.5	34.9	34.7	42.2	46.0
Khmer Republic	1962[a]	42.0	45.5	28.0	30.4	44.3	18.7
Korea, Republic of	1960	28.8	30.4	25.6	26.7	32.1	28.1
Malaya, Federation of	1947	23.4	28.0	14.5	20.8	9.8	14.1
	1957	24.6	32.2	13.8	16.7	9.5	19.1
Nepal	1952/54	40.8	41.9	24.8	33.6	23.6	15.9
	1961[a]	40.5	41.8	20.5	26.7	18.1	11.8
Pakistan	1951[a]	5.8	6.0	5.0	8.0	1.9	6.4
	1961	12.5	14.2	7.3	10.5	2.1	9.3
Philippines	1948[a]	20.8	12.7	34.1	45.7	40.6	39.3
	1960	24.6	14.8	42.7	53.9	48.0	51.1
Singapore	1957[a]	18.9	34.5	17.3	18.4	10.0	33.0
	1966[a]	21.6	24.1	21.5	22.6	14.5	33.5
Thailand	1947[a]	47.9	49.8	37.3	34.2	50.2	17.5
	1960	48.4	50.8	37.2	37.6	53.4	30.1
England and Wales	1961	32.6	11.5	33.3	30.5	43.1	50.0
United States	1960	31.9	9.3	33.6	24.4	36.0	51.4

[a] Data refer to total or experienced labour force, including unemployed workers.

[b] Data are also available for 1955.

Table 12.

Percentages of females among all workers in selected groups of "traditional" and "development" industries: censuses of 1946-1966 in ten countries of Asia and the Far East and two Western industrialized countries

Country	Census Year	"Traditional" Industries			"Development" Industries			
		Textiles	Trade	Personal Services	Metals	Machinery	Finance	CBR Services
Ceylon	1953	73.2	10.9	34.3	5.4	4.1	27.5	24.1
Hong Kong	1961[a]	43.3	17.0	48.9	30.4	3.7	11.0	38.2
India	1951[a]	28.0	16.2	31.6	6.9	1.9	6.8	14.9
	1961[a]	34.1	11.1	28.9	5.3	1.2	2.4	16.0
Iran	1956	53.6	0.8	32.5	0.2	0.1	4.8	18.9
	1966	60.7	1.2	28.2	0.6	1.2	6.2	25.4
Japan[b]	1950	63.9	36.3	66.6	9.5	9.3	33.6	40.9
	1960	66.9	38.8	65.5	13.2	19.2	35.5	42.5
	1965[a]	66.8	42.2	64.3	15.8	21.1	42.4	44.8
Malaya, Federation of	1947	33.6	10.1	28.1	2.3	1.1	3.9	23.0
	1957	41.0	9.7	33.8	2.7	0.6	4.6	26.4
Pakistan	1961	16.7	2.1	12.9	0.6	0.1	1.1	8.2
Philippines	1948	79.6		61.3	2.3	0.7	.....	39.9
	1960	72.3	49.4	72.9	4.6	7.8	17.9	50.1
Singapore	1957[a]	42.3	10.0	46.4	11.3	1.4	9.9	26.8
	1966[a]	55.9	14.4	47.3	9.9	3.0	15.4	35.4
Thailand	1960	68.4	53.9	57.6	15.5	5.8	17.2	33.2
England and Wales	1961	59.4	43.4	64.3	21.2	20.3	41.4	58.6
United States	1960	59.0	33.4	68.3	12.4	17.5	45.7	56.2

[a] Data refer to total or experienced labour force, including unemployed workers.

[b] Data are also available for 1955.

SOME PROBLEMS IN COLLECTING MANPOWER STATISTICS*

1. The discussions in this paper are based on the authors' experience in collecting manpower statistics during the postwar period.

Sources of Manpower Statistics

2. Manpower statistics are generally compiled from two different types of sources. One is the enumeration of the population and the other is the report from each establishment. Since data are obtained by interviews with the occupants of households in the case of a population survey, information is available for unemployed persons as well as for employed persons. On the other hand, in the case of establishment reports, figures include only the employed and enumeration of family workers and self-employed workers is very difficult. These merits of the manpower statistics compiled from a population survey are particularly significant in countries where a large proportion of workers belong to agriculture or other small businesses supported mainly by family workers.

3. Japan is undertaking a monthly sample survey to obtain current information on the employment status of the people. The Labour Force Survey—was initiated in September 1946. Since then, it has provided major information on the size and composition of the labour force in Japan.

4. The Labour Force Survey has a dual purpose—to measure the size of the labour force participating in the national economic activity and to measure unemployment. The size of the labour force is measured for each major industrial classification. Data are also compiled on occupational characteristics as well as on the demographic structure of the labour force. The survey items included in the questionnaire are as follows: name, relationship to head, sex, date of birth, marital status, status of economic activity, hours worked, status (as self-employed, family worker, etc.), industry, occupation, size of enterprise (number of persons engaged), desire for work. Among these survey items, most frequently used in the tabulation programme are the cross-tabulation of industry (major categories) and status (self-employed, family worker, employee). In many tables compiled as monthly results, employees in non-agricultural industries are further broken down by size of enterprise.

5. Results of the Labour Force Survey provide only the total figures for the country, except for some basic tables that are prepared separately for urban and rural districts, since this Survey has been designed as a sample survey with the primary object of obtaining current data for the whole country. In the Labour Force Survey, 26,000 households are selected as sample households throughout the country and interviewed by enumerators as of the end of every month. About 70,000 persons aged 15 years old and over living in these sample households are covered by the Survey. The over-all sampling ratio, which has been kept the same since the beginning of the Survey, is about one household out of 1,200 households.

6. Since the very beginning, the Survey has provided monthly data on the size of unemployment. In order to obtain more detailed information on unemployment, especially on underemployment, the special survey was designed within the frame of the monthly Survey. In the special survey on underemployment, such items as hours worked, income, usual status of activity feeling, of satisfaction with the present job, etc. are added to the questionnaire. These additional items are considered to be closely connected with the "unemployment" status of a person, and the results of the special survey are tabulated by crossing these factors without defining the concept of underemployment.

7. Until about 1955, supply in the Japanese labour market had exceeded demand. However, around 1960 the shortage of young labour and skilled workers was reported in many industrial branches. Table 1 shows the main changes in the size of labour force since 1955 in Japan. Under this circumstance, the problem of labour mobility has been taken up as the main topic to be investigated in the special surveys conducted in 1955 and thereafter.

8. The Employment Status Survey was first undertaken in 1956 and since then has been repeated at three-year intervals.

9. Geographical presentation of the results is one of the main features which distinguish the Employment Status Survey from the monthly Labour Force Survey The whole area of the country is divided into thirteen blocks according to its economic and social characteristics, and the results of the Employment Status Survey are tabulated for each of the blocks and seven largest cities. The basic survey items covered by the monthly survey are also included in the Employment Status Survey and in addition, a considerably large part of the questionnaire is devoted to questions on labour mobility, i.e. in-flow and out-flow of labour force by industrial branch or size of enterprise. Regional movement of the labour force and its motives are sought in the Survey. An emphasis is also placed on questions related to attitude towards work, e.g. wishing to change a job or to have additional jobs, reasons for wishing a job, type of job desired. These questions are asked not only

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Table 1.

Employed persons in agricutural and non-agricultural industries in Japan (thousands)

Year	Total employed persons	Agricultural Industries				Non-agricultural Industries			
		Total	Self-employed	Family workers	Employees	Total	Self-employed	Family workers	Employees
1955	40,900	14,780	4,910	9,130	740	26,120	5,370	3,710	17,040
1960	44,360	12,730	4,560	7,230	920	31,640	5,500	3,380	22,760
1965	47,300	10,460	3,940	5,930	590	36,840	5,450	3,220	28,170
1969	50,400	8,990	3,800	4,890	300	41,410	6,130	3,550	31,690

Source: Labour Force Survey.

of the persons who are out of work but also of the persons who have a job at present, as these data are considered to be of use in measuring under-utilization of the labour force or potential labour force. Since the Employment Status Survey aims at obtaining regional statistics, it requires a larger sample size than the monthly Labour Force Survey. About 250,000 households were selected as sample households for the Employment Status Survey taken in 1968. The over-all sampling ratio is about one-tenth, twelve times as large as that of the monthly Survey.

10. The census returns can be tabulated by the most detailed classification of industry and occupation whereas, in the case of the monthly survey, the classification has to be limited to major categories because the figures are subject to sampling error. It is also a unique feature of the census statistics that data are compiled for each minor administrative unit (city, town and village) numbering over 3,400 as well as for each Census District that is the minor area division specially defined for the purpose of census tabulation within the boundary of a city.

Concepts and Classification used in Manpower Statistics

11. The Labour Force Survey adopts the actual status approach, referring to the week ending on the last day of the month. In the results of the Survey, the population 15 years old and over is divided into "Labour force" and "Not in labour force". "Labour force" consists of "Employed" and "Totally unemployed", and "Employed" is further classified by whether they are at work or not at work. "Employed at work" refers to persons who worked for pay or profit at least one hour during the survey week. Family workers are also included in this category on the same basis as other workers. "Employed, not at work" includes self-employed workers who did not work during the survey week and whose absence from work has not exceeded 30 days, and employees who did not work during the survey week but who received or expected to receive wages or salary. "Totally unemployed" is defined as persons who were not employed, available for work, wished to work, and actively seeking or prepared for work.

12. For the Employment Status Survey, which is conducted at three-year intervals, the economically active population is defined by the usual status approach, and industry, occupation and other characteristics of the people are also determined according to their usual status. The term "usual" is used in the questionnaire without referring to any time period. In presenting the results of the Survey, the population 15 years old and over is divided into "Persons with a job" and "Persons without a job". "Persons with a job" refer to persons who are usually engaged in work for pay or profit and who are expected to be in the same status after the survey date (July 1). This category includes persons with jobs but not at work. Family workers are classified as persons with a job if they are usually engaged in work. No figures are compiled for the size of the unemployed element in the sense used by the Labour Force Survey but more detailed data are collected through questions on desires for work, which are asked both of the persons with a job and persons without a job. Unlike the Employment Status Survey, the Population Census adopts the actual status approach, referring to the week immediately before the Census date. The main reason for this is that it is considered advantageous to use the same definition in the Population Census and the monthly Labour Force Survey as the results of both surveys have to supplement each other.

Comparison of the Results between Surveys

13. It may be of interest to compare the results of the Labour Force Survey and the Employment Status Survey, which adopt different approaches for determining the economic activity of population. Table 2 shows the results of the Labour Force Survey for June 1968 (the last week of June is the survey week) and the annual average for 1968, compared with the results of the 1968 Employment Status Survey (July 1 is the survey date). As seen in this table, the economically active population for June 1968 is estimated at 52 million by the Labour Force Survey while by the Employment Status Survey it was estimated at 49 million. The difference between these two figures account for 6 per cent of the estimate. It is also noted in this table that the difference observed for females (12 per cent) is much bigger than that observed for males (2.5 per cent). The annual averages

Table 2.

Economically active population enumerated by the Labour Force Survey (actual status approach) and the Employment Status Survey (usual status approach) in Japan

Survey	Economically Active Population (in Thousands)			Ratio		
	Total	Male	Female	Total	Male	Female
Employment Status Survey, 1968 (July 1)	49,010	30,250	18,750	100.0	100.0	100.0
Labour Force Survey, Annual average for 1968	50,610	30,580	20,030	103.3	101.1	106.8
June 1968	52,060	31,020	21,040	106.2	102.5	112.2

for 1968 calculated from the monthly data are smaller than the estimates for June, but still bigger than the results of the Employment Status Survey. From this comparison, it may be assumed that the actual status approach tends to count the more economically active population than the usual status approach, particularly for the female population.

14. A similar comparison is made between the Population Census and the Labour Force Survey. In this case, both surveys adopt the same approach to identify the economically active population. In table 3, the results of the 1965 Population Census are compared with those of the Labour Force Survey for September 1965, which refer to the same survey week as in the Population Census. This table reveals that the Labour Force Survey counted more people as economically active than the Population Census by 710,000, which accounts for 1.5 per cent of the estimate. From the breakdown of figures by male and female, a much bigger difference is observed for the female population (5.4 per cent) than for the male population (1.0 per cent). Data are further studied by industry and status, as presented in tables 4 and 5, to see how such discrepancy differs among different types of worker. Self-employed persons recorded the difference of 6.3 per cent between two surveys; employees, 3.0 per cent; and family workers, 14.2 per cent. The difference is bigger for family workers, particularly in agricultural industries, as the difference for this group amount to as much as 18.6 per cent. Among non-agricultural industries, construction recorded a relatively large difference, both in absolute figures and in percentages.

Table 3.

Comparison of results between the Population Census and the Labour Force Survey, Japan

Item		Population Census, 1965 (1)	Labour Force Survey, 1965 (2)	(2)-(1) (3)	(3)/(1) ×100 (4)
Total		(000)	(000)	(000)	(%)
	Population 15 years old and over	73,110	73,180	70	0.1
	Labour force	48,270	48,980	710	1.5
	Employed	47,610	48,600	990	2.1
	Totally unemployed	660	380	280	42.4
	Not in labour force	24,820	24,170	650	2.6
Male					
	Population 15 years old and over	35,430	35,450	20	0.1
	Labour force	29,480	29,190	290	1.0
	Employed	29,030	29,010	20	0.1
	Totally unemployed	450	170	280	62.2
	Not in labour force	5,940	6,240	300	5.1
Female					
	Population 15 years old and over	37,680	37,730	50	0.1
	Labour force	18,780	19,790	1 010	5.4
	Employed	18,580	19,590	1 010	5.4
	Totally unemployed	210	200	10	4.8
	Not in labour force	18,880	17,930	950	5.0

Table 4.

Comparison of results, by status, between the Population Census and the Labour Force Survey, Japan

Status	Population Census 1965 (1)	Labour Force Survey 1964 (2)	(2)-(1) (3)	(3)/(1)×100 (4)
	(000)	(000)	(000)	(%)
Total employed persons	47,610	48,600	990	2.1
Self-employed	9,340	9,930	590	6.3
Family workers	9,280	10,600	1,320	14.2
Employees	28,910	28,030	880	3.0
Agricultural industries	11,130	12,550	1,420	12.8
Self-employed	4,460	4,710	250	5.6
Family workers	6,290	7,460	1,170	18.6
Non-agricultural industries	36,460	36,020	440	1.2
Self-employed	4,880	5,230	350	7.2
Family workers	2,990	3,140	150	5.0
Employees	28,530	27,640	890	3.1

Table 5.

Comparison of results, by industry, between the Population Census and the Labour Force Survey, Japan

Industry	Population Census, 1965 (1)	Labour Force Survey 1965 (2)	(2)-(1) (3)	(3)/(1)×100 (4)
	(000)	(000)	(000)	(%)
Agricultural industries	11,130	12,550	1,420	12.8
Non-agricultural industries	36,460	36,020	440	1.2
Fisheries & agriculture	600	620	20	3.3
Mining	330	380	50	15.2
Construction	3,380	3,040	340	10.1
Manufacturing	11,690	11,540	150	1.3
Wholesale, retail trade & finance	9,640	9,630	10	0.1
Transportation, communication & public utilities	3,150	3,030	120	3.8
Services	6,190	6,340	150	2.4
Government	1,490	1,450	40	2.7

15. A further analysis of the differences observed in the results between the Population Census and the Labour Force Survey was made by comparing the entries in the questionnaires of the Labour Force Survey with the replies to the 1965 Population Census questionnaires. This study covered about 6,800 households subsampled from the monthly samples. The summary of the results of this matching is shown in table 6. According to replies to Census questionnaires, 2,220 persons are classified as employed persons in agricultural industries; and, out of them, 88 per cent (1951 persons) fell in the same category both in the Population Census and in the Labour Force Survey. However, the remaining 12 per cent are classified in other categories by the Labour Force Survey, 4.8 per cent in non-agricultural industries and 7.3 per cent as not in the labour force. For any statistical figures based on the field enumeration, some margin has to be admitted, and, as seen in the foregoing examples, a fluctuation is more likely to occur for groups such as construction workers, who frequently change their living place, and for workers such as family workers in agriculture, whose activity is unstable and subject to large seasonal variation.

Table 6.

Comparison of entries in questionaries between the Population Census and the Labour Force Survey

Population Census, 1965 / Labour Force Survey Sept. 1965	Population 15 Year old and over	Labour Force						
		Total	Employed			Totally unemployed	Not in Labour Force	Not stated
			Total	Agri-cultural industries	Non-agri-cultural industries			
Population 15 years old and over	17,815	11,569	11,431	2,220	9,211	138	6,195	51
Labour Force	11,695	10,922	10,853	—	—	69	731	42
Employed	11,594	10,862	10,824	2,058	8,766	38	690	42
Agricultural industries	2,313	—	2,032	1,951	81		281	
Non-agricultural industries	9,281	—	8,792	107	8,685		489	
Totally unemployed	101	60	29	162	445	31-	41	0
Not in labour force	6,066	604	536			68	5,454	8
Not stated	54	43	42			1	10	1

Comments on the Basic Approach

16. A choice between the actual status approach and the usual status approach should be made in accordance with the economic circumstance of a country. The actual status approach is the concept to be applied to the manpower of developed countries where the economic activities of the people are clearly identified. However, in developing countries where the activities of the people are unstable and there exist no clear criteria between the employed and unemployed, the usual status approach may be the more appropriate concept from which to investigate the real status of the economic activities of the population.

17. The status of economic activity of workers in the primary industries is unstable, as compared with that of workers in other industries, and subject to large seasonal fluctuation. This is particularly evident in the case of the female population. Therefore, the actual status approach referring to the activity during a specified short period may suit a monthly survey being conducted with the aim of obtaining comprehensive current data to trace short-time variations in manpower. However, if the survey is to be conducted for one time or is a census with a long-time interval, this approach does not seem to be the right one; the usual status approach may be more suitable to identify the real stutus of the economically active population. If the actual status approach is adopted in a census enumeration, it is absolutely necessary to supplement the census data with current statistics from a monthly sample survey.

THE RELATIONSHIP BETWEEN POPULATION CHANGES AND LABOUR FORCE CHANGES: IMPLICATIONS FOR MANPOWER PROJECTIONS*

Introduction

This paper is concerned with the relationships between the rate of growth of total population and the rate of growth of total labour force; the rate of growth of population of working-age and the rate of growth of labour force; changes in population size and sex-age structure including activityr ates and changes in labour-force size and sex-age structure; and similar relationships for the urban and rural sectors taken separately.

The illustrative materials used in this paper refer mainly to countries and territories in the ECAFE region. They are based on the most recent United Nations estimates of population and ILO estimates of labour force for these areas for mid-years 1950 and 1960.

A. The relationship between rates of growth of population and rates of growth of labour force

It is not an uncommon assumption that the rate of growth of population and the rate of growth of labour force are similar both in terms of magnitude of level and direction of change. For example, economic projections of Gross National Product and of Productivity based on *per capita* values or population growth rates assume that such a coincidence does exist. However, from the data shown in tables 1 and 2 it is seen that this is a highly unwarranted assumption, particularly for countries in the ECAFE region.

For example, the data for the period 1950-1955 and 1955 1960 for some 21 Asian countries and territories shown in table 1 illustrate that there are at least nine different patterns regarding the relationship of these rates and the direction of change in the rates.

In 54 observations comparing growth rates of population and of labour force, there are only 5 cases where the rates of total growth and of labour force growth were similar, namely the 1955-1960 growth rates for Fiji and the growth rates for 1950-1955 and 1955-1960 for Afghanistan, and Indonesia.

As regards similarity of the direction of change of the rates of growth, there were 9 cases where both increased, 5 cases where both remained constant, and 4 cases where both decreased. However, for 11 countries, and territories, there was no such similarity at all. Thus in 5 cases the labour force rate of growth increased whereas the population growth rate remained constant (4) or decreased (1); in 3 cases the labour force growth rate remained constant whereas the population growth rate increased (1) or decreased (2); and in 2 cases the labour force growth rate declined whereas the population growth rate increased (2) or remained constant (1).

Thus according to the data in table 1, in 40 per cent of the cases observed (11 out of 27), the rate of growth of labour force did not even follow the *direction* of change of the rate of growth of population, and in 91 per cent of the cases (49 out of 54), the rates were not similar as to ! . In fact in only 10 per cent of the cases (Afghanistan and Indonesia) could one say that the rate of growth of labour force was similar to and also followed the direction of change of the population growth rate.

Even if the rate of growth of population of working-age is used as a substitute for rate of growth of labour force, there is very little relationship or at best a very tenous one between these rates of growth and those of total population (see table 2). In sum, it would appear that labour force projections that are linked to total population growth rates will most likely lead to very poor results and that projections that directly substitute rates of growth of population for rates of growth of labour force must be treated with even greater scepticism and caution.

B. The relationship between changes in sex-age structure of population and changes in labour force

Although as illustrated above, there appears to be very little relationship between changes in the size of total population and size of total labour force, when one considers the number of persons in each age-group for males and females separately, certain relationships do emerge.

The effects on growth in the labour force of changes in population size and sex-age structure (PSA) and of changes in activity rates can be discerned both separately and in combination by standardization techniques, that is by holding constant the population data (PSA) to measure only the effect of changes in activity rates and conversely by holding constant the activity rates to measure the effect of growth in size of population and changes in its sex-age structure. Table 3 illustrates this method using the population and labour force data of India for the period 1950-1960.

As table 3 indicates, the male labour force in India increased from 112.7 million in 1950 to 127.0 million in 1960 or by 14 million males in the ten-year period. However, if there had been no change in the activity rates for males during the period 1950-1960, the labour force in 1960 would have theoretically numbered 131.6 million males representing an increase of 18.9 million males due solely to the influence of changes in population size and age structure. The difference between the actual change (col. 4) and theoretical change (col. 5) represents the net effect of the decrease in male activity rates experienced during the decade. The net

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effects of these changes are shown in columns 8 and 9 of table 3 Thus, it appears that about 80 per cent of the change in the male labour force experienced during the decade 1950-1960 was related to changes in population size and age structure and conversely about 20 per cent to changes in the activity rates. For females, the net effect was about 70 per cent for population size and age structure and about 30 per cent for change in activity rates.

Similar calculations have been made for every country in the world and for the same reference period. The values for effect of changes in activity rates (col. 9) are shown in table 4 for all countries and territories in Asia and for the rest of the world by regions. As these materials show there does appear to be some relationship between the changes in population for males 25 to 54 years of age and the change in labour force size for this same age-group. As the data indicate less than 5 per cent of the change the labour force was due to changes in activity rates or conversely over 95 per cent of the change was due to population changes in this age-group.

For males under 25 years of age or over 55 years of age and for females of all ages the effects of population changes are more often than not counterbalanced or even vitiated by changes in the activity rates. Thus, labour force projections must perforce take account more particularly of changes in activity rates for all age-groups of females and for males under 25 or 55 years of age. For India, these accounted for 64 per cent and 60 per cent respectively of the total labour force in 1950 and 1960.

C. *The relationship of changes in urban and rural population to changes in the labour force.*

A series of analytical tables are presented in order to assess the influence of the differences in age structure and of activity rates among the urban and rural populations on the size and age structure of labour force. The data used here are drawn from the 1960 population census of Japan.

According to table 5, the population in Japan in 1960 numbered 45.8 million males and 47.5 million females. The actual age distribution of this population is shown in the first column of table 5. The next two columns in that table also show the age distribution of the population of all Japan had it been similar to the age structure of the urban population at that time (col. 2) or of the rural population (col. 3). Given the actual activity rates for all Japan and for the urban and rural populations in 1960, also shown in table 5, one can calculate the theoretical labour force according to the three variations in age structure (actual and 2 theoretical) and to the three variations in activity rates (actual and 2 theoretical). These calculations are shown in table 5 and the combination of variations per 10,000 actual active persons are shown in tables 6, 7, 8 and 9.

Thus, according to table 6, the 1960 labour force in Japan theoretically could have varied by 9 per cent (895 per 10,000) due to the variation of urban and rural age structure alone and by 16 per cent (1,577 per 10,000) due to the variation in activity rates of the urban and rural population. Viewed in combination, the urban pattern would have added 326 persons due to a more favourable age structure and subtracted 566 persons due to influence of activity rates for a net variation of -240 persons per 10,000 actual active. Conversely, the rural patterns would have subtracted 569 persons due to unfavourable age structure and added 1,011 persons due to influence of activity rates or, together, a net variation of +442 persons per 10,000 actual active. Corresponding details are also shown in table 6 for males and females separately.

The over-all effect on size of the total labour force computed according to each of the nine different situations mentioned above is illustrated in table 7: variations due to age structure alone (horizontal values) or to activity rates alone (vertical values) or to the net effect of both. The highest labour force figures appear in the bottom row left square, reflecting the combined influence of favourable urban age structure and rural activity rates.

Table 8 explores the effect of the same influences on the age structure of the male and female labour force of Japan. Details are shown for the six standard age groups, but for convenience these can be grouped into three major age groups, namely young workers (15-24 years of age), workers of prime working age (25-54 years of age) and older workers (55 and over). Thus in 1960, 25 per cent of the labour force of Japan were between the age of 15-24, 61 per cent in age group 25-54, and 14 per cent were aged 55 and over. For males the distribution in these three major age groups was 22 per cent, 67 per cent and 15 per cent, and for females it was 30 per cent, 58 per cent and 12 per cent. This pattern of a relatively younger female labour force is evident in all of the variations shown in table 8. Holding constant the activity rates but varying the age structure, first according to urban and then according to the rural age patterns, it is found that there is very little difference in per cent of labour force in the prime working age. However for the younger and older workers, the proportions change significantly: 27 per cent in age group 14-24 and 13 per cent for age 55 and over for the urban age structure effect, compared to 22 per cent and 17 per cent in these age groups as a result of the rural age structure.

Similarly, the effect of using either urban or rural activity rates can be shown by holding constant the age structure of the labour force. These values are shown in the last two columns of table 8. The effect is very limited in the case of males. However for females, the differences are quite significant. The female urban activity rates yield a 34 per cent, 55 per cent and 11 per cent distribution of the labour force over the three major age groups compared to 26 per cent, 61 per cent, 13 per cent when using the rural activity rates.

Table 9 illustrates for each of the seven standard age groups quite clearly the impact of differences in (a) urban/rural age structure, (b) urban/rural activity patterns, and (c) the combined patterns.

As noted earlier the variation due to differences in age structure between urban and rural amounted to about 9 per cent or 895 persons per 10,000 active as compared to 16 per cent or 1,577 persons for 10,000 active persons due to differences in activity rates. Table 9, shows details for each age group and for males and females separately. The 16 per cent difference between rural and urban due to variations in activity rates is primarily a function of the striking differences in the female activity rates. Table 9 reaffirms the importance of detailed information on the sex-age structure and on sex-age specific activity rates for urban and rural populations for purposes of projections of the labour force.

Conclusions

In general, changes in the size of total population which cannot be directly attributed to important migratory movements are of very little relevance for projection of the size of total labour force, at least in the medium term. Although rapid changes in fertility may in the short run have an indirect impact on the size of female labour force, the direct impact of such changes on the total labour force are usually not felt for at least 15 to 20 years. The same is also true for rapid changes in mortality since such changes usually affect the very young and very older segments of population, that is persons of non-working age.

The rates of growth of population and of labour force presented in this paper reflect various combinations of changes in fertility mortality and migration. However population rates of growth have very little relationship to rates of growth of labour force and are therefore of very little utility for projections of labour force over the medium term (10-20 years).

Although there is very little similarity between changes in the rate of growth of total population and of total labour force, a relationship is discernible between population and labour force changes for certain sex-age groups and more particularly for males 25 to 54 years of age where approximately 95 per cent of the change in the labour force is attributable to the change in population. However, in most Asian countries, the male labour force 25 to 54 years of age represents less than half of the total labour force. This population change and those for other age groups have accounted for about 80 per cent of the change in total male labour force. For females, the changes in population size for various age groups have ranged from about 25 per cent to 90 per cent of labour force growth. Variations in urban-rural distribution of population can also have an important influence on the size and sex-age composition of the labour force due, to a great extent, to differences in the activity rates.

In sum, information on changes in population size, composition and distribution is necessary but not sufficient in itself for explaining or projecting changes in size and sex-age composition of the labour force. Population projections by sex and age and by sub-areas (urban/rural or subregions within the countries) are of fundamental importance and form a basis for projection of labour force, but there are also other important variables mainly non-demographic in nature and these are the social, economic, cultural and other factors that influence the activity rates and changes in these rates for various age groups and for males and females. Any serious work on projections of labour force must take into account these factors as well.

Table 1.

The rate of growth of population and of labour force 1955-1960 compared to similar rates for 1950-1955

Population Growth Rate 1950-1955 vs 1955-1960

Labour Force Growth Rate 1955-1960 vs 1950-1955

	Higher			Similar			Lower		
	1950-1955		1955-1960	1950-1955		1955-1960	1950-1955		1955-1960
Higher	3.06 / 2.06	Fiji	3.24 / 3.23						
	2.66 / 1.34	Malaysia	3.10 / 1.92						
	2.14 / 1.78	Laos	2.34 / 1.94						
	1.97 / 1.88	Indonesia	2.18 / 2.12	3.58 / 2.95	China (Taiwan)	3.55 / 3.11			
	1.70 / 0.95	India	2.05 / 1.38	3.01 / 2.24	Philippines	3.07 / 2.51			
	1.36 / 1.31	Afghanistan	1.62 / 1.63	2.67 / 1.50	Pakistan	2.81 / 2.09	2.37 / 1.64	Australia	2.22 / 1.94
	1.03 / -1.10	Korea, Republic of	2.88 / 0.25	2.57 / 1.59	Iran	2.69 / 2.12			
	-1.35 / -2.01	Korea, Democratic Republic of	2.95 / 1.68						
	2.57 / 3.30	Mongolia	2.78 / 3.52						
Similar				2.94 / 1.96	Khmer Republic	2.92 / 2.05			
				2.58 / 1.85	Ceylon	2.54 / 1.78			
	1.90 / 1.62	Papua and New Guinea	2.19 / 1.72	1.86 / 1.76	Burma	2.00 / 1.65	2.28 / 1.76	New Zealand	2.12 / 1.85
				1.43 / 0.55	Nepal	1.34 / 0.43	1.43 / 2.04	Japan	0.93 / 1.89
				1.79 / 3.43	China (Mainland)	1.78 / 3.30			
Lower	1.65 / 2.[illegible]	Viet-Nam, Democratic Republic of	2.72 / 1.91				5.03 / 4.89	Singapore	4.58 / 3.88
	1.32 / 2.05	Viet-Nam, Republic of	2.58 / 1.62	3.00 / 2.37	Thailand	3.00 / 2.19	4.75 / 3.77	Hong Kong	4.31 / 3.14

Source: Population data, United Nations; labour force data, ILO.

Note: The data to the left and to the right of each area relate respectively to 1950-1955 and 1955-1960. The numerator refers to the population rate of growth and the denominator to the labour force rate of growth. Growth rates that differ by more than 0.15 are treated as "not similar"

Table 2.

Rates of growth of total population, population of working age, total labour force, male and female labour force, 1950-1955 and 1955-1960

Area	Reference Period	Total Pop.	Pop. Age 10-64	Males Age 10-64	Total Labour Force	Male Labour Force	Female Labour Force
Afghanistan	1950-55	1.36	1.37	1.46	1.31	1.11	2.38
	1955-60	1.62	1.65	1.72	1.63	1.44	2.64
Australia	1950-55	2.37	1.85	2.00	1.64	1.50	2.08
	1955-60	2.23	2.30	2.34	1.94	1.54	3.18
Burma	1950-55	1.86	1.69	1.62	1.76	1.49	2.17
	1955-60	2.00	1.60	1.65	1.65	1.43	1.97
Ceylon	1950-55	2.58	2.38	2.03	1.85	1.91	1.61
	1955-60	2.54	2.56	2.23	1.78	1.84	1.58
China	1950-55	1.79	1.84	1.89	3.43	1.40	7.94
	1955-60	1.78	1.84	1.88	3.30	1.41	6.50
China (Taiwan)	1950-55	3.58	2.48	2.61	2.95	2.17	6.14
	1955-60	3.55	2.95	2.90	3.11	2.21	6.11
Fiji	1950-55	3.06	2.80	2.21	2.06	1.92	4.56
	1955-60	3.24	3.23	3.52	3.23	3.00	6.96
Hong Kong	1950-55	4.75	2.65	2.71	3.77	3.71	3.93
	1955-60	4.31	4.20	4.29	3.14	2.99	3.47
India	1950-55	1.70	1.32	1.21	0.95	0.97	0.90
	1955-60	2.05	1.92	1.98	1.38	1.44	1.25
Indonesia	1950-55	1.97	1.99	2.17	1.88	2.01	1.56
	1955-60	2.18	2.23	2.37	2.12	2.24	1.84
Iran	1950-55	2.57	1.83	1.84	1.59	1.28	4.53
	1955-60	2.69	2.49	2.49	2.12	1.75	5.03
Japan	1950-55	1.43	1.94	1.97	2.04	1.94	2.20
	1955-60	0.93	1.97	2.00	1.89	1.76	2.09
Khmer Republic	1950-55	2.94	2.26	2.21	1.96	1.89	2.04
	1955-60	2.92	2.64	2.64	2.05	1.97	2.15
Korea, Democratic People's Republic of	1950-55	-1.35	-1.77	-2.93	-2.01	-3.30	-0.46
	1955-60	2.95	2.27	2.50	1.68	1.79	1.54
Korea, Republic of	1950-55	1.03	0.85	0.37	1.10	-0.46	-2.43
	1955-60	2.88	1.95	2.07	0.25	1.59	-3.03
Laos	1950-55	2.14	2.03	2.04	1.78	1.75	1.85
	1955-60	2.34	2.24	2.27	1.94	1.89	1.99

Malaysia	1950-55	2.66	1.93	1.52	1.34	1.12	1.99
	1955-60	3.10	2.88	2.60	1.92	1.75	2.40
East Malaysia: Sabah	1950-55	2.86	1.76	2.40	1.94	2.25	1.25
West Malaysia	1950-55	2.67	2.03	1.66	1.44	1.16	2.36
	1955-60	3.13	2.94	2.60	2.03	1.74	2.94
Mongolia	1950-55	2.57	2.63	2.64	3.30	2.41	5.78
	1955-60	2.78	2.82	2.85	3.52	2.54	5.61
Nepal	1950-55	1.43	0.78	0.62	0.55	0.37	0.81
	1955-60	1.34	0.98	1.05	0.43	0.37	0.51
New Zealand	1950-55	2.28	1.89	2.01	1.76	1.68	2.00
	1955-60	2.12	2.17	2.23	1.85	1.58	2.77
Pakistan	1950-55	2.67	1.66	1.53	1.50	1.26	3.40
	1955-60	2.81	2.34	2.23	2.09	1.82	3.92
Papua and New Guinea	1950-55	1.90	1.91	1.90	1.62	1.73	1.47
	1955-60	2.19	1.98	1.91	1.72	1.79	1.61
Philippines	1950-55	3.01	2.86	2.85	2.24	2.36	1.99
	1955-60	3.07	3.16	3.17	2.51	2.66	2.21
Portuguese Timor	1950-55	1.63	1.51	1.82	1.52	1.40	1.30
	1955-60	1.51	1.46	1.55	1.29	1.31	2.38
Ryukyu Islands	1950-55	2.87	1.82	2.23	2.49	2.50	2.49
	1955-60	1.96	2.38	2.69	1.65	1.61	1.71
Singapore	1950-55	5.03	4.48	4.93	4.89	4.58	6.50
	1955-60	4.58	4.02	4.06	3.88	3.49	5.99
	1955-60	3.62	2.84	2.68	2.55	2.50	2.66
Thailand	1950-55	3.00	2.41	2.38	2.37	2.30	2.44
	1955-60	3.00	2.61	2.59	2.19	2.15	2.23
Viet-Nam, Democratic Republic of	1950-55	1.65	2.65	2.70	2.51	2.57	2.45
	1955-60	2.72	1.64	1.72	1.91	2.01	1.82
Viet-Nam, Republic of	1950-55	1.32	2.21	2.27	2.05	2.07	2.03
	1955-60	2.58	1.45	1.49	1.62	1.68	1.56

Source: Population Data, United Nations, Labour Force Data, ILO.

Table 3

The Effects of population sex-age structure and socio-economic-cultural and other factors on the supply of labour: India, 1950-1960
(absolute numbers in thousands)

Sex And Age	Labour Supply			Actual Change	Change Due to		Total Change	Net effect of	
	1950 Pop. × 1950 Rates	1960 Pop. × 1960 Rates	1960 Pop. × 1950 Rates	(cols. 2-1)	PSA (cols. 3-1)	SECO (cols. 2-3)	(cols. 5+6)	PSA[1] (cols. 5/7) (per cent)	SECO[2] (cols 6/7)
	(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)	(9)
Both sexes	**165,367**	**185,680**	**194,181**	**20,313**	**28,814**	**-8,501**	**37,315**	**77.22**	**-22.78**
10-14	14,407	14,316	16,930	-91	2,523	-2,614	5,137	49.11	-50.89
15-19	23,094	21,433	23,469	-1,661	375	-2,036	2,411	15.55	-84.45
20-24	23,710	25,266	26,386	1,556	2,676	-1,120	3,796	70.50	-29.50
25-44	69,288	83,491	84,983	14,203	15,695	-1,492	17,187	91.32	-8.68
45-54	18,800	23,344	23,752	4,544	4,952	-408	5,360	92.39	-7.61
55-64	10,342	12,312	12,664	1,970	2,322	-352	2,674	86.84	-13.16
65+	5,726	5,518	5,997	-208	271	-479	750	36.13	-63.83
Males	**112,651**	**127,010**	**131,576**	**14,359**	**18,925**	**-4,566**	**23,491**	**80.56**	**-19.44**
10-14	8,604	8,400	10,462	-114	1,858	-1,972	3,830	48.51	-51.49
15-19	15,558	14,208	15,671	-1,350	113	-1,463	1,576	7.17	-92.83
20-24	16,331	17,286	17,844	955	1,513	-558	2,071	73.06	-26.94
25-44	47,115	56,992	57,068	9,877	9,953	-76	10,029	99.24	-0.76
45-54	13,012	16,445	16,531	3,433	3,519	-86	3,605	97.61	-2.39
55-64	7,520	9,039	9,304	1,569	1,784	-215	1,999	89.24	-10.76
65+	4,511	4,500	4,696	-11	185	-196	381	48.56	-51.44
Females	**52,716**	**58,670**	**62,605**	**5,954**	**9,889**	**-3,935**	**13,824**	**71.54**	**-28.46**
10-14	5,803	5,826	6,468	23	665	-642	1,307	50.88	-49.12
15-19	7,536	7,225	7,798	-311	2,621	-573	835	31.38	-68.62
20-24	7,379	7,980	8,542	601	1,163	-562	1,725	67.42	-32.58
25-44	22,173	26,499	27,915	4,326	5,742	-1,416	7,158	80.22	-19.78
45-54	5,788	6,899	7,221	1,111	1,433	-322	1,755	81.65	-18.35
55-64	2.822	3,223	3,360	401	538	-137	675	79.70	-20.30
65+	1,215	1,018	1,301	-197	86	-283	369	23.31	-76.69

PAS

1 Population size and sex-age structure

Note: SECO

2 Socio-economic-cultural and other factors

Table 4:

The effect of change in activity rates on changes in the size and structure of labour force by regions and countries: world summary, 1950-1960

Area	Males								Females							
	All Ages	10-14	15-19	20-24	25-44	45-54	55-64	65+	All Ages	10-14	15-19	20-24	25-44	45-54	55-64	65+
World	-18.67	-59.62	-48.48	-13.28	-0.24	-2.52	-11.62	-49.57	46.20	-57.74	23.42	55.01	56.15	51.86	41.69	13.75
More developed countries	-21.94	-83.26	-86.65	-17.77	2.79	-2.25	-10.61	-53.60	44.04	-79.79	-97.22	64.43	65.97	52.90	35.02	-32.10
Less developed countries	-17.93	-54.92	-41.33	-12.74	-1.35	-2.90	-12.32	-44.48	48.92	-54.34	47.66	59.51	55.13	51.35	47.32	59.45
East Asia	-19.57	-67.61	-38.18	-11.08	-0.80	-1.89	-13.75	-51.25	75.83	-67.57	73.62	81.73	79.72	74.95	73.97	85.63
Middle south Asia	-17.87	-46.41	-66.90	-21.54	-1.56	-2.91	-11.57	-51.56	-23.64	-39.68	-53.79	-26.20	-14.85	12.32	-18.04	-71.81
Southeast Asia	-11.04	-42.79	-24.84	-10.90	-1.74	-1.89	-7.55	-25.89	-8.36	-41.26	-18.14	-4.25	0.40	3.13	-3.53	-15.46
Southwest Asia	-14.27	-38.76	-51.36	-13.39	-1.95	-2.75	0.41	-10.05	-34.67	-48.66	-66.57	-42.00	-21.96	-33.95	-15.18	-5.23
Europe	-32.01	-83.33	-84.61	-57.80	2.96	-5.89	-6.39	-60.71	50.35	-85.15	-65.56	68.87	98.63	55.57	26.80	-43.35
USSR	-22.97	-82.45	-35.90	-21.90	-1.46	-5.17	-27.16	-40.94	32.02	-55.67	-28.47	34.49	50.27	37.08	-14.78	-40.92
Africa	-18.03	-53.35	-29.34	-8.83	-2.29	-3.02	-11.16	-56.15	-26.62	-39.57	-30.64	-26.74	-23.18	-19.79	-17.70	-40.39
North America	-7.79	-30.13	-22.76	60.87	-28.82	7.48	-4.41	-54.72	70.62	35.87	13.04	46.97	79.78	71.38	74.29	53.78
Latin America	-15.48	-46.21	-30.56	-7.29	-0.20	-5.05	-19.97	-33.83	12.45	-44.78	-12.64	30.15	28.91	20.85	-0.96	-25.60
Oceania	-12.34	-46.43	-27.16	-2.54	2.48	3.31	12.61	-63.91	19.44	-44.18	-12.51	-12.42	36.29	48.54	68.35	-29.51

Table 4 (continued).

Area	Males								Females							
	All Ages	10-14	15-19	20-24	25-44	45-54	55-64	65+	All Ages	10-14	15-19	20-24	25-44	45-54	55-64	65+
Afghanistan	-12.99	-30.27	-18.42	-8.34	-4.95	-7.01	-15.73	-33.85	48.59	52.59	49.86	51.33	47.09	48.79	1.85	99.29
Australia	-12.94	-52.51	-29.44	3.10	2.78	2.93	8.27	-65.76	33.74	-43.25	-10.67	47.14	49.38	58.07	72.63	-22.40
Burma	-15.56	-76.25	-47.88	-17.18	-3.34	-2.77	-5.73	-42.80	18.34	84.31	51.64	19.00	14.70	14.97	10.67	27.01
Ceylon	-7.06	-39.73	-2.50	30.22	4.72	-1.16	-19.96	-62.41	-31.89	-63.25	-31.52	43.27	-18.96	-36.84	-53.30	-72.48
China (mainland)	-20.16	-66.73	-37.03	-7.28	-1.17	-2.95	-16.42	-62.18	80.92	-66.79	78.07	85.07	84.57	81.27	80.92	92.17
China (Taiwan)	-18.90	-64.81	-59.38	-36.10	5.13	8.24	12.51	-13.53	69.73	-49.17	55.37	75.29	80.76	87.92	90.61	88 67
Hong Kong	1.53	-9.23	-16.34	24.14	4.59	2.38	-8.09	-30.11	40.73	47.55	31.74	32.53	29.79	30.27	14.91	24.00
India	-19.44	-51.48	-92.85	-26.96	-0.75	-2.40	-10.76	-51.49	-28.47	-49.15	-68.60	-32.59	-19.78	-18.35	-20.32	-76.70
Indonesia	-5.83	-22.96	-15.25	-5.48	-0.51	-0.76	-7.10	-10.91	-9.91	-23.75	-10.85	-3.83	-3.60	-13.68	-12.45	-20.60
Iran	-18.37	-27.52	-25.91	-11.60	-9.87	-5.46	-20.16	-56,86	63.21	75.69	48.74	76.86	67.44	31.82	-23.29	-66.93
Japan	-11.10	-73.49	-34.28	-37.16	0.63	5.98	7.16	-33.62	14.48	-74.23	-40.93	53.87	21.03	18.10	10.84	-12.40
Khmer Republic	-14.36	-43.56	-34.58	-19.89	-2.66	-2.55	-5.65	-38.39	-11.33	-13.43	-15.82	-14.91	-9.00	-12.09	-3.44	-31.19
Korea, Democratic People's Republic of	-75.37	-91.99	-94.68	-44.63	-4.34	-28.96	-25.56	-60.30	-29.75	-92.98	-88.47	-28.77	-21.36	25.50	95.22	62.43
Korea, Republic of	-36.41	-83.24	-48.24	-30.63	-5.04	-5.95	-71.84	-49.55	-69.72	-90.07	-80.22	-66.11	-61.76	-67.94	-85.08	-51.12
Laos	-14.21	-42.60	-28.08	-18.96	-2.87	-2.37	-6.51	-38.59	-9.14	-12.47	-10.81	-10·77	-7.46	-9.66	-3.10	-26.03
Malaysia	-20.36	-47.48	-42.28	-23.81	-6.97	-6.63	-9.81	-38.02	-17.33	-39.33	-29.09	-28.36	2.40	-15.30	-17.99	-28.82
Mongolia	- 8.84	-37.65	-16.87	-3.11	-0.48	-1.29	-6.95	-21.70	58.89	-41.67	54.72	66.10	65.82	60.01	60.52	77.10
Nepal	-29.28	-38.60	-39.92	-2.97	-4.80	-9.80	-19.70	-85.01	-12.49	62.37	-9.72	-32.06	-10.63	-22.69	1.14	50.31
New Zealand	0.04	-63.18	-21.56	-13.01	7.03	8.31	32.85	-63.08	28.73	-56.86	-4.27	-60.70	46.99	62.75	81.03	6.46
Pakistan	-11.57	-27.78	-24.49	-8.84	-4.14	-5.30	-10.09	-36.12	47.04	52.96	58.25	57.53	40.54	45.88	14.48	52.40
Philippines	-12.49	-33.78	-20.71	-10.16	-2.22	-2.36	-12.24	-28.53	-24.02	-59.46	-15.69	-9.11	-13.42	-10.31	-23.42	-43.47
Singapore	-10.82	-54.74	-26.91	-8.45	0.74	-1.34	-15.80	-61.02	38.88	-39.49	45.08	58.99	40.09	3.77	4.32	44.19
Thailand	-12.62	-44.58	-33.83	-14.06	-2.13	-2.27	-6.22	-33.00	-9.61	-15.26	-18.03	-9.06	-7.01	-10.08	-9.22	-20.68
Viet-Nam, Democratic Republic of	-11.42	-71.77	-29.56	-14.59	-2.27	-1.88	-4.64	-15.11	-8.49	-32.94	-11.79	-9.64	-6.62	-9.25	-2.06	-7.16
Viet-Nam, Republic of	-13.18	-62.91	-30.84	-14.90	-2.47	-2.20	-7.55	-32.20	-9.84	-27.71	-12.79	-10.16	-7.02	-10.81	-3.26	-16.06

Table 5:

The Influence of Age-Structure and Activity Rates of urban and Rural Population on the size and sex-age Composition of the Labour force for all Japan: 1960

(absolute numbers in thousands)

Sex and Age	Age Structure of Population All Japan			Age-Specific Activity Rates		
	Actual	Theoretical				
		Same as Urban	Same as Rural	All Japan	Urban	Rural
Males						
All ages	**45,819.5**	**45,819.5**	**45,819.5**	**58.50**	**59.79**	**56.30**
0-14	14,269.7	13,303.0	15,971.1	. . .	. . .	. .
15-19	4,674.5	5,155.5	3,828.8	51.60	52.31	49.91
20-24	4,095.0	4,641.6	3,134.0	87.87	85.17	94.89
25-44	12,897.5	13,371.1	12,063.0	97.45	97.17	97.98
45-54	4,296.2	4,257.1	4,364.6	96.60	96.55	96.69
55-64	3,244.6	3,072.6	3,547.2	86.90	85.41	89.17
65+	2,342.0	2,018.6	2,910.8	54.40	50.37	59.33
Females						
All ages	**47,527.7**	**47,527.7**	**47,527.7**	**36.16**	**32.70**	**42.10**
0-14	13,753.4	12,913.9	15,194.3	. . .	. . .	. . .
15-19	4,583.0	4,993.8	3,877.9	49.68	50.26	48.38
20-24	4,191.4	4,575.4	3,532.4	69.38	66.42	75.96
25-44	13,886.1	14,448.9	12,920.2	52.90	44.08	69.83
45-54	4,709.5	4,662.9	4,789.5	54.43	45.31	69.66
55-64	3,361.3	3,207.9	3,624.5	43.29	34.19	57.12
65+	3,043.0	2,724.9	3,588.9	20.94	15.17	28.46

Source: 1960 Population Census of Japan.

Note: All figures have been rounded independently.

Table 5: (continuod).

Sex and Age	Actual Age Structure			According to Urban Age Structure			According to Rural Age Structure		
	All Japan Activity Rates	Urban Activity Rates	Rural Activity Rates	All Japan Activity Rates	Urban Activity Rates	Rural Activit Rates	All Japan Activity Rates	Urban Activity Rates	Rural Activity Rates
Males									
All ages	**26,822.3**	**26,564.6**	**27,292.4**	**27,649.5**	**27,393.7**	**28,132.1**	**25,367.1**	**25,103.5**	**25,814.3**
15-19	2,411.9	2,445.2	2,333.0	2,660.2	2,696.8	2,573.1	1,975.7	2,002.8	1,911.0
20-24	3,598.2	3,487.7	3,885.7	4,078.6	3,953.3	4,404.4	2,753.8	2,669.2	2,973.9
25-44	12,568.2	12,532.5	12,637.0	13,030.1	12,992.7	13,101.0	11,755.4	11,721.6	11,819.3
45-54	4,150.2	4,148.0	4,154.0	4,112.4	4,109.8	4,116.2	4,216.2	4,214.0	4,220.1
55-64	2,819.7	2,771.2	2,893.2	2,670.1	2,624.3	2,739.8	3,082.5	3,029.7	3,163.0
65+	1,274.1	1,180.0	1,389.5	1,098.1	1,016.8	1,197.6	1,583.5	1,466.2	1,727.0
Females									
All ages	**17,186.7**	**14,953.0**	**21,164.4**	**17,796.1**	**15,541.0**	**21,837.3**	**16,139.5**	**13,944.1**	**20,009.6**
15-19	2,276.7	2,303.4	2,217.3	2,480.9	2,509.9	2,416.0	1,926.5	1,949.0	1,876.1
20-24	2,907.9	2,783.9	3,183.8	3,174.4	3,039.0	3,475.5	2,450.8	2,346.2	2,683.2
25-44	7,346.2	6,121.0	9,696.7	7,643.5	6,369.1	10,089.7	6,834.8	5,695.2	9,022.2
45-54	2,563.4	2,133.9	3,280.6	2,538.0	2,112.8	3,248.2	2,606.9	2,170.1	3,336.4
55-64	1,455.2	1,149.2	1,920.0	1,388.7	1,096.8	1,832.4	1,569.0	1,239.2	2,070.3
65+	637.3	461.6	866.0	570.6	413.4	775.5	751.5	544.4	1,021.4

Table 6

Variation in size of labour force due to influence of age structure and of activity rates of urban and rural population

(per 10,000 actual active persons for all Japan)

	Variation due to		Net Variation
	Age Structure	Activity Rate	
Both sexes			
Urban	326	-566	-240
Rural	-569	1,011	442
Total*	895	-1,577	-682
Males			
Urban	308	-96	212
Rural	-543	175	-368
Total*	851	-271	580
Females			
Urban	355	-1,300	-945
Rural	-609	2,314	1,705
Total*	964	-3,614	-2,650

Source: Based on Table 5

* Urban minus rural.

Table 7

The influence of age structure and of activity rates of urban and rural population on the size of labour force, by sex: all Japan, 1960

According to Age Structure

According to Activity Rates	Urban Population	All Japan	Rural Population
Urban Population	(a) 9,756	(a) 9,434	(a) 8,873
	(b) 10,213	(b) 9,904	(b) 9,359
	(c) 9,042	(c) 8,700	(c) 8,113
All Japan	(a) 10,326	(a) 10,000	(a) 9,431
	(b) 10,308	(b) 10,000	(b) 9,457
	(c) 10,355	(c) 10,000	(c) 9,391
Rural Population	(a) 11,354	(a) 11,011	(a) 10,412
	(b) 10,488	(b) 10,175	(b) 9,624
	(c) 12,706	(c) 12,314	(c) 11,642

Source: Based on table 5

(a) Per 10,000 actual active persons, all Japan.

(b) Per 10,000 actual active males, all Japan.

(c) Per 10,000 actual active females, all Japan.

Table 8

The influence of age structure and activity rates of urban and rural population on the sex-age composition of the labour force for all Japan: 1960

(Per 10,000 active persons)

Sex and Age	Actual Labour Force	Theoretical All Japan			
		All Japan Activity Rates		All Japan Age Structure	
		Urban Age Structure	Rural Age Structure	Urban Activity Rates	Rural Activity Rates
Both sexes					
All ages	**10,000**	**10,000**	**10,000**	**10,000**	**10,000**
15-19	1,066	1,131	940	1,144	939
20-24	1,478	1,596	1,254	1,511	1,439
25-44	4,525	4,549	4,479	4,493	4,609
45-54	1,526	1,464	1,644	1,513	1,534
55-64	971	893	1,121	944	993
65+	434	367	562	395	466
Males					
All ages	**10,000**	**10,000**	**10,000**	**10,000**	**10,000**
15-19	899	962	779	920	855
20-24	1,342	1,475	1,086	1,313	1,424
25-44	4,686	4,713	4,634	4,718	4,630
45-54	1,547	1,487	1,662	1,562	1,522
55-64	1,051	966	1,215	1,043	1,060
65+	475	397	624	444	509
Females					
All ages	**10,000**	**10,000**	**10,000**	**10,000**	**10,000**
15-19	1,325	1,394	1,194	1,540	1,048
20-24	1,692	1,784	1,518	1,862	1,504
25-44	4,274	4,295	4,235	4,093	4,582
45-54	1,491	1,426	1,615	1,427	1,550
55-64	847	780	972	769	907
65+	371	321	466	309	409

Source: Based on table 5

Table 9

The influence of age-structure and activity rates of urban and rural population on the size of labour force for all Japan: 1960

(Per 10,000 actual active persons)

Sex and Age	Actual Labour Force	Theoretical All Japan: All Japan Activity Rates, Urban Age Structure	Theoretical All Japan: All Japan Activity Rates, Rural Age Structure	Theoretical All Japan: All Japan Age Structure, Urban Activity Rates	Theoretical All Japan: All Japan Age Structure, Rural Activity Rates	Urban/Rural Differences due to: Age Structure	Urban/Rural Differences due to: Activity Rates	Total Difference
Both sexes								
All ages	**10,000**	**10,326**	**9,431**	**9,434**	**11,011**	**+ 895**	**-1,577**	**2,472**
15-19	10,000	10,965	8,323	10,128	9,705	+2,642	+ 423	3,065
20-24	10,000	11,148	8,000	9,640	10,866	+3,148	-1,226	4,374
25-44	10,000	10,381	9,335	9,367	11,215	+1,046	-1,848	2,894
45-54	10,000	9,906	10,163	9,357	11,074	- 257	-1,717	1,974
55-64	10,000	9,494	10,881	9,171	11,259	-1,387	-2,088	3,475
65+	10,000	8,730	12,216	8,588	11,800	-3,486	-3,212	6,698
Males								
All ages	**10,000**	**10,208**	**9,457**	**9,904**	**10,175**	**851**	**-271**	**1,122**
15-19	10,000	11,029	8,191	10,138	9,673	2,838	+465	3,303
20-24	10,000	11,335	7,653	9,693	10,799	3,682	-1,106	4,788
25-44	10,000	10,368	9,353	9,972	10,055	1,015	-83	1,098
45-54	10,000	9,909	10,159	9,995	10,009	- 250	-14	264
55-64	10,000	9,469	10,932	9,828	10,261	-1,463	-433	1,896
65+	10,000	8,619	12,428	9,261	10,906	-3,809	-1,645	5,454
Females								
All ages	**10,000**	**10,355**	**9,391**	**8,700**	**12,314**	**964**	**-3,614**	**4,578**
15-19	10,000	10,897	8,462	10,117	9,739	2,435	378	2,813
20-24	10,000	10,916	8,428	9,574	10,949	2,488	-1,375	3,863
25-44	10,000	10,405	9,304	8,332	13,200	1,101	-4,868	5,969
45-54	10,000	9,901	10,170	8,324	12,798	- 269	-4,474	4,743
55-64	10,000	9,543	10,782	7,897	13,194	-1,239	-5,297	6,536
65+	10,000	8,953	11,792	7,243	13,589	-2,839	-6,346	9,185

Source: Based on table 5.

INTER-RELATIONSHIP BETWEEN POPULATION AND MANPOWER PROBLEMS IN THE CONTEXT OF SOCIO-ECONOMIC DEVELOPMENT OF THE ECAFE REGION*

Object, Scope and Coverage of the Paper

1. The object of this paper is to provide a general background to a study of the interrelationship between population and manpower problems in the context of socio-economic development of the ECAFE region. This paper takes as its focal point certain major issues pertaining to population and manpower that have arisen in ECAFE countries in the course of their socio-economic development. The discussion thus adopts a problem-oriented approach that might be distinguished from a purely academic approach.

2. For purposes of this paper, the ECAFE region consists of 26 countries belonging to east Asia, middle south Asia, south-east Asia and Oceania. According to the medium variant of population projections prepared by the Population Division of the United Nations, the present population of the ECAFE region might be approximately 2,000 million, constituting about 55 per cent of the world's total. Figures for individual countries of the region are given in table 1.

3. Countries in the ECAFE region show a good deal of variation among themselves in regard to levels of socio-economic development. The commonly accepted classification regards three countries — Australia, Japan, and New Zealand — as developed, while the remaining countries are considered as developing. The developed countries account for only about 6 per cent of the region's total. The differences between various countries in terms of levels of living cannot all be expressed in explicit or quantitative terms because of non-availability of comparable data and for other reasons.

Population and Manpower Problems and Policies

4. The nature of problems in the field of population and manpower is not identical for each country of the ECAFE region, nor does it necessarily remain the same for any particular country over a period of time. Since the change over time is generally a more complicated problem, first considered is the nature of problems as currently experienced in the ECAFE countries. Four broad patterns may thus be distinguished. First, might be mentioned Mongolia where a need is felt to increase the size of population. Secondly, there is Japan where a drastic and swift reduction in the rate of growth of population was achieved in the 1950's and where manpower shortages are currently being experienced because net additions to the labour force are unable to meet the demand of rapid economic growth. As can be seen in Table 1, the population of these two countries is a very small fraction of that of the region. Thirdly, there are several countries in the region where underemployment of unskilled labour is quite common but where high-level manpower categories like engineers, doctors, scientists, managers, teachers and nurses are in short supply. Fourthly, there are countries where the problem of unemployment and underemployment has now engulfed a large number of educated persons (including, as in India, a professional and technical manpower group like engineers) and where the shortage situation is confined to only a few, selected manpower groups like doctors, managers and nurses. Countries of the latter two categories comprise most of the region and are also characterized by rapid population growth. Of course, this four-fold division cannot take care of the exact situation in each country, since a still different combination of shortages and surpluses might exist therein. The purpose here is only to indicate the broad patterns of variation that currently are evidenced in different countries of the ECAFE region. Furthermore, since the third and the fourth patterns (associated with unemployment and underemployment) are more common for the developing countries, their situation would receive greater attention in this paper.

5. Considering next the pattern of variation over time, it is seen that the manpower situation in many of the developing countries has undergone a significant change as between the 1950s and the 1960s. Plans for industrial-ization initiated in several countries in the 1950s faced the challenge of a shortage of new skills, and various programmes for developing them were therefore undertaken. Problems of unemployment and underemployment of rural manpower were also recognized, but they received relatively less attention at that time than the problem of shortage of high-level personnel. As the Director-General of the International Labour Organisation (ILO) put it, efforts were concentrated "thoughout the (First Development) Decade very largely on the development and improvement of skills".[1] The broad overall picture, however, changed even before the First Development Decade came to a close, since an increasing number of developing countries were then faced with a serious problem of unemployment and underemployment, not only of unskilled and semi-skilled personnel but also of the educated and the trained.

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*This background paper, presented in its Original Form, was prepared by S.P. Agarwal, Institute of Applied Manpower Research, New Delhi, serving as consultant to the International Labour Organisation for the Seminar. A slightly condensed version is presented in this *report*. The views expressed are those of the author and not necessarily those of the ILO.

Since the main purpose of the paper is to emphasize the inter-relationship between population and manpower problems, a detailed study of manpower planning questions is not attempted. Furtheremore, the presentation of facts and opinions is intended primarily to facilitate discussion at the seminar rather than to argue out any particular point of view, and for this reason no conclusions are drawn.

1 ILO, *The World Employment Programme: Report of the Director-General to the International Labour Conference* (Geneva, 1969), p. 4.

Table 1.

Estimated population, gross reproduction rate and expectation of life at birth (both sexes) in ECAFE countries, 1970 [a]

Country	Population in Thousands	Gross Reproduction Rate	Expectation of Life at Birth (Both Sexes)
1. Afghanistan	16,978	3.40	37.5
2. Australia	12,514	1.39	72.0
3. Brunei	120[b]	2.73[c]	na
4. Burma	27,748	2.70	47.5
5. Cambodia	7,102	3.28	50.0
6. Ceylon	12,603	2.33	63.0
7. (a) China (Mainland)	759,619	2.14	50.0
(b) China (Taiwan)	14,035	2.16	68.2
8. Fiji	540	1.98[c]	69.6[c]
9. Hong Kong	4,168	2.21	70.2
10. India	554,577	2.86	48.8
11. Indonesia	121,198	3.20	45.0
12. Iran	28,358	3.40	50.0
13. Japan	103,499	1.00	70.9
14. (a) Korea, People's Democratic Republic of	13,892	2.76	57.6
(b) Korea, Republic of	32,107	2.59	57.6
15. Laos	2,985	3.00	47.5
16. Malaysia	10,787	2.55	64.6[c]
17. Mongolia	1,285	3.00	57.6
18. Nepal	11,258	3.00	40.5
19. New Zealand	2,860	1.77	71.1
20. Pakistan	136,898	3.70	47.4
21. Papua-New Guinea	2,421	2.90[c]	na
22. Philippines	38,114	na	na
23. Singapore	2,105	1.79[c]	na
24. Thailand	36,161	3.20	59.1
25. (a) Vietnam, Democratic Republic of	21,154	2.50	50.0
(b) Vietnam, Republic of	17,952	2.50	50.0
26. Western Samoa	145[b]	2.90[c]	na

a Population estimates refer to the medium variant of projections prepared by the Population Division of the United Nations (mimeographed). Gross reproduction rate and expectation of life indicated the values assumed for 1965-1970 in these projections.

b Based on extrapolation of the 1969 figure reported in United Nations, *Demographic Year Book*, 1969 (New York, 1970).

c Approximate value based on the latest available data in United Nations, *Demographic Year Book*, 1969 (New York, 1970).

na = not available.

Of course, shortages of certain categories of manpower persisted, but they no longer constituted the dominant problem. The beginning of the Second Development Decade (1970-1980) is thus marked with new emphases in which employment generation on a large scale is stressed as is also a wider recognition of the population problem. To quote again the Director-General of the ILO, "The population growth in most developing countries is an 'explosion' in more senses than one: it is adding new elements of discontent to an already explosive social situation."[2]

6. The formulation of policies in the field of population and manpower has naturally proceeded along with a clearer appreciation of the dominant problems. In general, such policies can be viewed from a wide perspective, covering topics like fertility control, regulation of migration, promotion of health and nutrition, education and training, employment and family welfare, and proper utilization and development of skills. In view of the specific problem of rapid population growth in the developing countries of Asia, family planning for fertility control has been accepted as the centre-piece of their population policies. Two broad patterns are now visible. First, there are countries where Governments have adopted population policies supported by national family planning programmes. Many of the countries of the Asian region—China (Taiwan), Ceylon, Fiji, India, Indonesia, Iran, Republic of Korea, Malaysia Nepal, Pakistan, the Philippines and Singapore—belong to this category. Secondly, there are countries where Governments support activities by voluntary bodies relating to family planning. Hong Kong and Thailand belong to this category. The adoption of policies and programmes of family planning aims at moderating population growth in the interest of national development and also at promoting family welfare.

7. In a number of Asian countries, the national familyplanning programmes form an integral part of the national development plans. In many cases, targets have also been set up that are expressed in terms of reduction of birth rate or reduction of population growth rate or the numbers of "acceptors" of particular methods of family planning. For instance, targets of the first two kinds are understood to have been established as follows—China (Taiwan): reduction in growth rate from about 3 per cent in 1965 to 2 per cent by 1973; India: reduction in birth rate from 41 per 1,000 to 32 per 1,000 by 1974 and to 25 per 1,000 as soon as possible; the Republic of Korea: reduction in growth rate from 3 per cent to 2 per cent by 1971; Malaysia:reduction in growth rate from 3 per cent to 2 per cent by 1985; Nepal: maintenance of current growth rate below 2 per cent and its progressive reduction to 1 per cent by 1985; Pakistan: reduction in birth rate from 43 per 1,000 to 33.2 per 1,000 during the Fourth Five-Year Plan (1970-1975); and Singapore: reduction in birth rate (which was 37.8 per 1,000 in 1960) to below 20 per 1,000 by the early 1970s.

2 *Ibid.*, p. 5

8. While the population problem is characterized mainly by a high fertility level, the manpower problem is characterized by the simultaneous existence of (i) shortages and (ii) unemployment and underemployment. The manpower problem thus represents imbalances between the supply of, and demand for, manpower, both quantitative and qualitative, as also non-optimum utilization of personnel and lack of development of their skills. The problem of unemployment threatens the stability of the entire social fabric if it spreads among educated categories and converts their rising expectations into frustration and disillusionment. Similarly, persistent shortages of key categories of manpower, if not alleviated through remedial measures, hamper socio-economic development. The Employment Policy Convention of the ILO, adopted in 1964, thus refers to the basic objectives of employment policy as follows:

> "With a view to stimulating economic growth and development, raising levels of living, meeting manpower requirements and overcoming unemployment and underemployment, each member shall declare and pursue, as a major goal, an active policy designed to promote full, productive and freely chosen employment."[3]

Widening Range of Interrelationships

9. An acceleration in the rate of growth of population began in several Asian countries in the 1950s. Grave concern was, as expressed by the Registrar General who conducted the population census of 1951, that a rapid rate of population increase might prove to be a serious obstacle in the way of a solution to the country's food problem. This and other considerations led to the acceptance by the Government of India of family planning as an important element of the First Five Year Plan (1951-1956). India thus became one of the few countries in the world to enunciate officially and accept a national programme of family planning. It needs to be noted, however, that an interrelationship between population and food was one of the important issues at that time.

10. There was also general emphasis on an interrelationship between population and *per capita* income. It was felt that rising rates of population increase were accompanied with less than proportionate rates of income growth. An increase in population was thus viewed as a factor leading to a low level of *per capita* income. Researchers like A.J. Coale and E.M. Hoover went a step further when they suggested that population growth might have depressed income per head more than proportionately, the chief reason being the lower saving and investment levels that result from heavier dependency burdens.[4]

3 ILO, Employment Policy Convention, 1964, Article 1 (para 1) as reproduced in *Conventions and Recommendations* (1919-1966), (Geneva, 1966), pp. 1097-98

4 Coale, Ansley J., and Hoover, Edgar M., *Population Growth and Economic Development in Low Income Countries* (Princeton University Press, 1958), p. 285

11. An interrelationship between population and employment is yet another aspect of the problem that is now given special attention. The Employment Policy Recommendation adopted by the ILO in 1964 thus made a reference to population growth as a problem associated with economic underdevelopment and suggested that "Countries in which the population is increasing rapidly, and especially those in which it already presses heavily on the economy, should, study the economic, social and demographic factors affecting population growth with a view to adopting economic and social policies that make for a better balance between the growth of employment opportunities and the growth of the labour force."[5] In the context fo the Asian situation, the ILO Asian Advisory Committee outlined the concept of the Asian Manpower Plan at its meeting at Singapore in 1966[6], and the Sixth Asian Regional Conference (Tokyo, 1968) adopted a resolution concerning the Asian Manpower Plan and Population Policy.

12. In the field of population and manpower, there is need to recognize various facets of the interrelationships involved. The commonest relationship between population and manpower can be expressed by saying that demographic forces provide, with a suitable time lag, an increase in labour force or manpower supply. Although this is certainly a very important relationship which is here considered in depth, attention is also drawn to three other aspects. First, demographic forces not only generate manpower supply, but they also generate manpower demand. The consumption and other needs of every additional member of the population imply more work for the persons who fulfil those needs. For example, if we assume a doctor-population ratio of 1:1,000, it implies that every additional member of the population generates a demand for 0.001 of the time of a doctor. Secondly, demographic forces do not always increase manpower supply, but they may also bring about a relative decrease in the supply of certain categories of manpower in particular locations. For example, migratory patterns within developing countries have resulted in an acute shortage of trained medical and health personnel for family planning work in rural areas, particularly among rural women. Thirdly, the relationship between demographic and manpower elements is not merely a one-way traffic in the sense that a population increase leads to pressure on the employment market, but it also works the other way when a situation of manpower shortage has a bearing on the population and family planning programmes. Therefore, it is proposed to discuss in subsequent paragraphs the following types of interrelationships:

(i) those involving manpower supply;
(ii) those involving manpower demand;
(iii) those involving manpower utilization; and
(iv) those involving changes in fertility, mortality and migration.

The various interrelationships are by no means mutually exclusive. However, a separate discussion of each of them brings out its role in the developmental process.[7]

Inter-relationships involving Manpower Supply

13. The size of the labour force of a country is generally calculated by first estimating the size and the age-sex composition of its population and by then applying thereto the age-sex specific labour force participation rates. From the viewpoint of a study of interrelationships, it is necessary to have an idea of the factors on which age-sex specific labour force participation rates depend. Factors influencing these rates generally vary according to whether consideration is given to men or women, the younger age-groups or the older age-groups, and also residents of rural or urban areas.[8] These factors will be considered in discussing the various interrelationships. At this stage, it might facilitate a separate identification of interrelationships involving manpower supply if the various elements on which the supply might depend are listed. Important elements influencing manpower supply are:-

a) size of population and its distribution by age, sex and urban-rural location;

5 ILO, Employment Policy Recommendation, 1964 (para. 28), as preproduced *in Conventions and Recommendations* (1919-1966), *op. cit.*, p. 1105.

6 ILO, *Report of the 13th Session of Asian Advisory Committee*; (doc. G.B. 168/4/7).

7 For information on the general aspects of the relation between demographic analysis and manpower planning, see *Demographic Aspects of Manpower: Sex and Age Patterns of Participation in Economic Activities* (United Nations publication, Sales No: 61.XIII.4); *Methods of Analysing Census Data on Economic Activities of the Population* (United Nations publication, Sales No. E. 69. XIII. 2); *Principles and Recommendations for the 1970 Population Censuses* (United Nations publication, Sales No. E. 67 XVIII. 3); International Labour Office, *International Standardization of Labour Statistics* (Geneva: 1959); and Denis F. Johnston, "Demographic analysis of manpower development with particular reference to developing countries", working paper for the Interregional Seminar on Demographic Aspects of Manpower, 1970 (ESA/FSDAM/CP.2)

8 For a general discussion on the role of the various factors affecting the size, composition and growth of the labour force, see *Methods of Analysing Census Data on Economic Activities of the Population*, *op. cit.*; Ettori Denti "Sex-age patterns of labour force participation by urban and rural populations" in *International Labour Review*, 98:6 (Dec. 1968) and Jan L. Sadie, "Demographic aspects of labour supply and employment", background paper submitted to the World Population Conference, 1965 (A.5./19/E/489).

b) marital status, and maternal status (in the case of women);
c) school enrolment;
d) relation between occupation and education; and
e) socio-cultural norms. [9]

Of course, all these factors are not equally important and their respective roles vary according to the age-sex group under consideration and the economic and social situation of the particular country.

14. The size of a country's population and its distribution by age, sex and urban-rural location are the most important determinants of the size of labour force. A recent study showed that 89 per cent of the net change in the world labour supply during the decade 1950-1960 was due to changes in population size and age-sex structure, the remaining 11 per cent being due to socio-economic, cultural and other factors. [10] Projections of labour supply made in this study imply that population size and age-sex structure will continue to play a dominant role during the remaining part of the twentieth century, possibly accounting for more than 85 per cent of the net changes in labour supply, in the developed and the developing countries alike. Additionally, although that study did not consider the impact of changes in urban-rural distribution along with that of changes in population size and age-sex structure, possibly because of lack of data, such a procedure would have been justified in principle, especially for the developing countries. This is so because the age-sex specific participation rates are seen to be generally lower in urban areas as compared to rural areas (except possibly for women in certain age groups). A study made for seven Asian countries shows that activity rates for males are lower in urban than in rural areas for all age-groups. In the case of females, the picture varies from country to country, but the standardized activity rates for ages 10 and over, based on censuses taken during 1960-1966, are still uniformly lower in urban areas than in rural. [11]

15. Stress has been given the importance of estimating changes over time that occur in the size of a country's population and in its distribution by age, sex and urban-rural location. The process of change is next examined in greater detail, by considering each of these factors separately. In general, the sex-distribution of the population of a country does not change rapidly, unless:

(i) the volume of net migration is large in relation to the country's population, and

(ii) the sex-distribution of migrants differs considerably from that of the country's population. [12]

Size of urban population as a percentage of the total is rather small in most of the developing countries of the ECAFE region (other than Hong Kong and Singapore). However, the rate of growth of urban population is faster in each country than that of its total population. This trend, by itself, implies that, other things being equal, the quantitative increase in the size of the labour force would be bigger if the rate of urbanization were less rapid. Of course, as pointed out in paragraph 34 below, the qualitative impact of urbanization is probably more significant than the quantitative.

16. This brings up consideration of the process of change in the age structure of the population, which is of fundamental importance for assessing changes over time in labour force supply. The main point to be stressed is that changes in the size of the labour force depend primarily upon changes in the size of the working-age population (which may be specified as ranging from 10 or 15 to 59 or 64, and thus might vary a little from country to country). In particular, the youngest age-group (corresponding broadly to pre-school age and school age) and the oldest age-group (corresponding broadly to retirement age) do not have much of a direct impact on the size of the labour force. As shown in paragraphs 31 and 32 the presence of children affects the activity rate of women in certain age-groups and thus exerts an indirect influence on the size of the labour force.

17. The percentage of population that is accounted for by the working age-group is crucial for a determination of the size of labour force. At any particular point of time in a given country, this percentage reflects the levels and patterns of fertility, mortality and migration experienced by that country for a fairly long time. Most of the developing countries have had a high level of fertility, although their mortality rates have declined rather sharply during recent years. On the other hand, both fertility and mortality rates are low in developed countries. Consequently, the percentage of total population accounted for by the working age-group is generally smaller in developing countries as compared to the developed ones. For example, this percentage is estimated to be as low as 54 for the developing countries of the ECAFE region and as high as 65 for the developed countries of the region. [13]

18. Rates of growth of labour force calculated by comparing total figures at two points of time give an idea of the net increase during that period. Although this is a useful indicator, it tells only a part of the real

9 For a discussion on the role of other factors like wage level and incentives in the determination of manpower supply, see S.P. Agarwal, *Manpower Supply: Concepts and Methodology* (Meerut, Meenakshi Prakashan, 1969).

10 James N. Ypsilantis "World and regional estimates and projections of labour force" in *Sectoral Aspects of Projections for the World Economy*, Vol. III (United Nations publication, Sales No: E.69.II.C.3) p. 39.

11 John D. Durand, "Manpower demography of countries in Asia and the Far East", background paper for the Regional Seminar on Interrelation between Population and Manpower Problems, Bangkok, 1971, tables 4 and 5 (included in this report pp. 84-86.

12 Excluded from consideration are unusual phenomena like large scale deaths of men in a major war.

13 For purposes of this calculation, the working age-group is assumed to be 15-59 years, and estimates of population are in accordance with the medium variant referred to in paragraph 2.

School attendance and economic activity rates of boys in the age-groups 10-14 and 15-19 in selected countries of the ECAFE region: around 1960

Country	Year	Age Group 10-14		Age Group 15-19	
		Percentage Attending School	Percentage in Labour Force	Percentage Attending School	Percentage in Labour Force
1. Australia	1961	97.6	1.5	28.4	69.6
2. Indonesia	1961	64.7	22.6	23.2	66.7
3. Iran	1961	60.8	35.8	32.2	68.0
4. Japan	1960	99.7[a]	—	48.2	50.7
5. Korea, Republic of	1960	86.7	4.4[b]	39.2	45.2
6. Malaysia (East)					
a) Sabah	1960	51.3	na	26.8	69.0
b) Sarawak	1960	67.9	na	19.3	70.9
7. Pakistan	1961	31.1	49.4	15.1	76.7
8. Philippines	1960	64.4	19.8	29.6	59.3

Sources: United Nations, *Demographic Year book* 1963; United Nations, *Demographic Year book* 1964.
a Refers to age-group 12-14.
b Obtained by relating economically active boys in age-group 13-14 to the total number of boys in age-group10-14.

story of changes that occur in labour force supply over time. A more meaningful picture of such changes necessitates a separate consideration of (i) new entrants into labour force and (ii) withdrawals from labour force, which represent gross changes over time.[14] The number of new entrants is, in general, determined mainly by (previous) levels of fertility, school enrolment, type of education and training, and patterns of manpower demand. Moreover, the female component of new entrants is subject to certain additional influences like age at marriage, age at the birth of the first child and socio-cultural norms. It has been noticed in various countries that the average age of entry into labour force rises under the impact of urbanization, industrialization and growth of education. Many of the new occupations require a fairly high level of education and pre-employment training. Such a pattern of manpower demand makes an increasing number of young men stay longer at schools and colleges, with the result that the labour force participation rate for males in the age-group 15-24 is seen to go down as a result of socio-economic development. Data on school attendance and economic activity rates of boys in the age-groups 10-14 and 15-19, for selected countries of the ECAFE region during recent years, are shown in table 2. It needs to be stressed, however, that in the case of women a different pattern has been noticed, viz. that their activity rate in the age-group 15-24 is generally seen to go up as a result of socio-economic development. The extent of applicability of such results to particular countries depends, however, on the rate at which the process of urbanization, industrialization and modernization takes place therein.

19. The number of workers who withdraw from the labour force during a period of time depends mainly on levels of mortality, retirement and migration. Since mortality levels have steadily gone down, there are now fewer withdrawals from employment due to death. This means that replacement needs arising from such occurrences have declined. The retirement factor operates essentially in the case of wage-employees who are governed by certain rules and regulations in the 'modern' sector of employment. Those who are own-account workers or unpaid family workers need not have any formal retirement. That is why it has been noticed that the rate of labour force participation of persons over 65 years of age has generally gone down as a result of socio-economic development. The downward trend is not so pronounced in the case of elderly women because their status is often that of unpaid family workers.

14 For technique of projecting new entrants and separations, see V.R.K. Tilak and Prom Panitchapakdi "Population and Labour Force Growth in Thailand", a paper presented at the Conference of the International Union for the Scientific Study of Population, Sydney, 1967.

Interrelationships Involving Manpower Demand

20. Interrelationships involving manpower demand have received relatively less attention in demographic studies than those involving manpower supply. The

reason probably is that, while labour force supply is determined primarily by demographic factors, the demand for labour is estimated mainly on the basis of investment, output, technology and productivity. However, an indication of how population characteristics do exert an important influence on the process of determination of manpower demand is here presented.[15]

21. The population of a country is usually taken as one of the factors influencing manpower demand. A model worked out for estimating labour requirements by major occupational groups refers to three variables,[16] viz.

(i) per capita income,
(ii) rate of growth of national income, and
(iii) population.

Apart from a specific inclusion of population as a variable in this model, the influence of population is also recognized indirectly because *per capita* income itself is determined by the size of the total population.

22. The interrelationship between population and manpower forms the basis for an estimation of demand for certain categories of manpower engaged in services. A common practice is to relate the demand for doctors to the population they are expected to serve. Of course, the use of a crude doctor-population ratio has certain weaknesses, which can partly be removed by considering not only total population but also its distribution in terms of age, sex, urban rural location, income level, etc. Studies made in Sweden showed that the age composition of patients was different from the age composition of the population. Accordingly the population of that country was converted in terms of unit consumers of medical care. For examlde, each person in the age-group 50-69 was estimated to represent, on an average, 1.2 units of consumption of medical service.[17] An analyst working along these lines might also attach suitable weights to children and to women in the reproductive age-group. The point to be stressed for present purposes is that the size of the population and its demographic and economic characteristics have an important role in an estimation of the demand for health and medical personnel.

23. A ratio between teachers and students is commonly used as a basis for estimating the demand for teaching personnel. Of course, the ratio varies according to the stage and type of education. Demographic factors play a major role in making such calculations, particularly with reference to free and compulsory education. Planners in each country calculate how many boys and girls in specified age-groups are likely to be enrolled in schools. Once a satisfactory estimate of the number of students in different classes is obtained, the calculation of teacher requirement is made quite accurately. Beyond the compulsory stage of education, the role of non-demographic factors becomes increasingly important. Even so, it can be justifiably claimed that know-ledge about the number of boys and girls in specified age-groups serves a very useful purpose in educational and manpower planning.

24. An estimate of future manpower requirements has to take into consideration not only the net additional manpower required in various occupations but also attritions from the existing stock of workers. The component of demand representing replacement needs is often equal to the number of workers who withdraw from employment during the period under consideration. There are, in general, five factors which lead to workers' withdrawal from employment in an occupation during a given time period, viz (i) mortality, (ii) retirement, (iii) pre-retirement or intermittent withdrawal, (iv) occupational mobility, and (v) migration. The processes which underlie the operation of these factors of withdrawal differ from one another in important respects. For example, while health and medical factors and age have a major influence on mortality, the rate of retirement is determined partly by age and partly by economic forces of demand, supply, savings, family responsibility, social security, etc. Similarly, pre-retirement or intermittent withdrawal would be applicable mainly to occupations in the fields of medicine, nursing, teaching and other services where the percentage of women is large. Migration depends on the combined impact of 'push' and 'pull' factors, but it is an important demographic phenomenon.

25. A common pattern of manpower utilization in Asian countries attempted to attain high rates of output growth through increasing capital intensity, improving technology and consequently rising levels of productivity, and thus to attain eventually an expansion of employment opportunities. This strategy was based largely on the experience of European and North American countries as they progressed from a rural, agricultural, traditional and low-income economy to an urbanized, industrialized, modern and high-income economy.

26. What have the developing Asian countries achieved in the field of manpower utilization during the First Development Decade? An assessment would naturally vary from country to country. From the viewpoint of providing quantitative estimates of employment growth, national plan documents of these countries are seen to be of two types. First, there are countries of which the plan documents do not attempt any overall quantitative assessment of the changing employment situation. It is worth mentioning that the desirability or otherwise of making such an attempt in the context

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15 For discussion on the role of investment, output, technology, productivity and other factors in the determination of manpower demand, see S.P. Agarwal, *Manpower Demand: Concepts and Methodology*, op. cit.

16 James G. Scoville "The occupational structure of employment" in *Sectoral Aspects of Projections for the World Economy*, *op. cit.*, pp. 77-109. See also Yves Sabolo "Sectoral employment growth: the outlook for 1980", *International Labour Review*, Vol. 100, No. 5, November 1969, pp. 445-474.

17 Sten-Olof Doos, *Long-term Employment Forcasting: Some Prblems with Special Reference to Current Organization and Methods in Sweden* (Paris: Organization for Economic Cooperation and Development, 1962).

of the data-gathering arrangements in India was recently examined by an expert committee (under the chairmanship of Prof. M.L. Dantwala). The final recommendation of the Dantwala committee was in favour of discontinuing an overall quantitative assessment, although it was attempted in the earlier India plans. The committee opined that "the concept (of labour force) as adopted in developed economies is unsuitable for an economy like ours with its preponderance of self-employment and production within household enterprises".[18] Secondly, there are a few countries in the ECAFE region of which the national plan documents do attempt a quantitative assessment of the employment situation. The unenviable task of accounting for the rapid rate of increase in the labour force is then handled either by leaving a gap between labour force and employment or by projecting an accelerated growth of employment in manufacturing and other sectors. A study of the labour survey data of the Philippines for the period 1963-1967 suggests that the projected rate of growth of employment in manufacturing (via. 10 per cent per year) proved to be too optimistic and could not be achieved.[19] Of course, some of the plan documents do specifically indicate that agriculture would have to absorb a part of the net increase in labour force. Such was, for example, the case in India when a quantitative assessment of the employment situation for the Third Plan (1961-1966) was attempted in the plan document.

27. Selected data on various aspects of unemployment in developing countries of Asia are presented in tables 3 to 5. The following points emerge from a study of these data:

a) Rates of unemployment are generally higher in the urban areas of Asian countries as compared to their rural areas. (The data for Iran where the rural rate is reported to be higher than the urban rate need to be further examined to see how far the difference was real or whether it arose from differences in concepts, methodology, etc.)

b) Unemployment affects largely the younger age group, say 15-24.

c) The rate of unemployment is seen to vary with the level of educational attainment. Those who complete high school or secondary education seem to be worst hit. The incidence of unemployment is low for illiterate persons; it rises slowly for those who attain aprimary level of education and reaches its peak in the case of those who have completed secondary education. The unemployment rate then shows a decline in the case of graduates of higher education.

28. A study of interrelationships between output, employment, labour force, education and population growth strengthens the hands of those who are advocating a re-orientation of the planning strategy by making employment generation a primary goal of socio-economic development. Such a re-orientation is particularly

18 Government of India, *Report of the Committee of Experts on Unemployment Estimates* (New Delhi: Planning Commission, 1970) p. 30

19 Turnham, David, *The Employment Problem in Less Developed Countries, A Review of Evidence* (Paris: Organization for Economic Cooperation and Development, 1970), p. 171.

Table 3.

Estimated unemployment rates in urban and rural areas of Asian countries in recent years

Country	Year	Unemployed Persons as a Percentage of Labour Force	
		Urban	Rural
1. Ceylon	1968	14.8	10.4
2. China (Taiwan)	1968	3.5	1.4
3. Hong Kong	1966	4.1	na
4. India	1966/67	1.6	na
5. Indonesia	1961	8.5	na
6. Iran	1966	5.5	11.3
7. Korea, Republic of	1965	12.7	3.1
8. Malaysia (West)	1967	11.6	7.4
9. Philippines	1967	13.1	6.9
10. Singapore	1966	9.1	na
11. Thailand	1966	2.8	na

Source: Turnham, David, *The Employment Problem in Less Developed Countries, A Review of Evidence* (Paris, OECD, 1970).

Table 4.

Estimated rates of unemployment in urban areas of Asian countries by educational level in India, Malaysia and Ceylon in recent years

	Educational Level	India (1960-61)	Malaysia (1965)	Ceylon (1963)
1.	Illiterate	1.2	10.4	
				7.1
2.	Primary	2.7	19.5	
3.	Secondary	7.0	30.7	7.3 to 11.8
4.	Higher	2.8	15.5	2.3

Sources: (a) Institute of Applied Manpower Research, *Fact Book on Manpower* (New Delhi, 1969); (b) Turnham, David, *The Employment Problem in Less Developed Contries, A Review of Evidence* (Paris, OECD, 1970).

Table 5.

Estimated rates of unemployment in Asian countries by sex and age in recent years

	Country, Year and area Covered	Sex	Unemployed as a Percentage of Labour Force in the Same Age-group	
			15-24 Years	15 Years and Over
1.	Ceylon (1968, urban)	Persons	39.0	15.0
		Males	36.1	12.9
		Females	48.4	25.9
2.	China (1966)	Persons	6.9	2.6
		Males	5.8	2.1
		Females	8.1	6.8
3.	India (1961-62, urban)	Persons	8.0	3.2
		Males	8.1	3.4
		Females	7.7	3.1
4.	Korea (1966, non-farm)	Persons	23.6	12.6
		Males	25.6	13.2
		Females	21.5	11.3
5.	Malaysia (1965, urban)	Persons	21.0	9.8
		Males	17.7	7.4
		Females	26.8	16.7
6.	Philippines (1965, urban)	Persons	20.6	11.6[b]
		Males	23.8[a]	10.8
		Females	16.9	12.9
7.	Singapore (1966)	Persons	15.7[c]	9.2
8.	Thailand (1966, urban)	Persons	7.7	3.4
		Males	8.0	3.2
		Females	7.3	3.4

Source: Turnham, David, *The Employment Problem in Less Developed Countries, A Review of Evidence* (Paris, OECD, 1970).

a Relates to age-group 10-24. b Relates to age-group 10 and over. c Relates to age-group 15-29.

necessary in the current situation of many of the developing countries of the ECAFE region because of (i) widespread phenomenon of a rapid rate of population growth upsetting still further the balance between population, labour force and other resources, (ii) dualism between urban and rural areas and also between traditional and modern sectors, (iii) massive underemployment of unskilled workers and explosive unemployment of the educated job-seekers, (iv) relative scarcity of infrastructure and capital resources, and (v) major deficiencies in institutions and trained human resources for modernization. If employment is accepted as a primary goal of development, an achievement of employment targets will assume more significance than the current emphasis on the rate of growth of *per capita* income as the commonest indicator of development.

Interrelationships involving Changes in Fertility Mortality and Migration

29. Babies born during a certain year start entering the labour force after, say, fifteen years. During this period, they are exposed to mortality risks prevailing in their respective countries. Those who survive up to the school-entry age, say six years, have an opportunity of receiving education to the extent their society can afford. Other things remaining equal, a smaller number of children can hope to receive a relatively better quality of education. Thus a decline in birth rate implies not only that there might be fewer (new) entrants to the labour force with an appropriate time lag but also that such (new) entrants might be better educated. The implications are thus both quantitative and qualitative, and the process of socio-economic development is likely to be influenced thereby to a significant extent. Workers with better education, training and skill and with a youthful and optimistic outlook can facilitate the introduction of newer technology as well as of newer methods of operation. They can also adapt themselves more easily to newer institutions and organizational arrangements. All this can lead to higher productivity and to faster rates of socio-economic development. Of course, the supply of a more qualified labour force, by itself, cannot bring about the desired changes, for which suitable patterns of manpower demand and utilization are also necessary.

30. A change in fertility level exerts a powerful influence on the age-structure of the population. Of course, the age-structure generally depends on the combined impact of fertility, mortality and migration. However, in the context of the demographic situation in many of the developing countries of the ECAFE region, further changes in the age-structure of the population are likely to be brought about primarily by changes in fertility. If fertility levels continue to remain high, these countries might continue to have a 'young' population with a heavy burden of dependency in the form of children. On the other hand, if fertility levels go down, the percentage of population in the young age-group, say 0-14, is likely to decline sharply while the percentages in the working age-group as well as in the older age-group would go up. Quantitative estimates of these changes can be made with the help of model life tables.[20] For example, let us visualize the impact of a one-third decline in fertility, say from a gross reproduction rate of 2.25 to 1.50, while mortality is assumed to remain constant, say at the level corresponding to an expectation of life of 50 years (at birth). The Model 'West' life table in the work cited implies in this case that a one-third decline in fertility (without any change in mortality) would change the age structure of the population as indicated below:

(a) the percentage of population in the age-group 0-14 will be reduced from 37.0 to 27.1;

(b) the percentage of population in the age-group 15-59 will be increased from 56.1 to 60.6; and

(c) the percentage of population in the age-group '60 and over' will be increased from 6.9 to 12.3.

Of course, changes in the age-structure of the population do not take place concurrently with those in fertility, but with a time lag. Also while fertility rates decline, the level of mortality in Asian countries might not remain constant but may decline slowly to still lower levels.

31. In the inter-relationships that have been discussed in the preceding two paragraphs, attention was focussed primarily on the progeny and on their role in the future labour force. Now considered is the relationship between fertility decline and economic activity of the parents (or more appropriately the mothers). The labour force role of women is influenced by a greater variety of factors than that of men. Age and rural-urban residence have already been listed in paragraph 14 as two of the basic factors that influence the labour force participation rates of men as well as of women. Observed data have shown that, in general, for any particular combination of age and place of residence within a given country, the activity rate of women is lower than that of men. Among other factors that influence the labour force participation rates of women, mention may be made of the following:

(i) marital status;
(ii) age at marriage:
(iii) age of mother at the birth of the first child;
(iv) school attendance and educational level attained;
(v) number and ages of children;
(vi) availability of employment opportunities which might be suitable for women; and
(vii) socio-cultural norms and values.

32. From the data reported in censuses, surveys and other studies, the following interrelationships may be observed:

a) Rise in age at marriage, school attendance or rise in educational level and decline in fertility generally go together with higher activity rates of women, particularly in the age-group 15-24.

b) Urbanization, industrialization and other forms of modernization generate a number of employment

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20 Coale, Ansley J., and Demeny Paul, *Regional Model Life Tables and Stable Populations*, (Princeton, New Jersey: Princeton University Press, 1966.)

opportunities under modern conditions of work which are conducive to employment of women not only on a full-time basis but also on a part-time basis; this also facilitates re-entry of women into the labour force when their children are grown up.

c) Developed countries experienced a decline in fertility after having attained a certain level of socio-economic development. Attempts are now being made in developing Asian countries to bring about a decline in fertility with the help of family planning communication and other related activities and thus to achieve such a decline either prior to, or concurrently with, a rise in the level of socio-economic development.

33. The relationship between mortality decline and the size of the labour force can be visualized in several ways. One way would be to assess the impact of mortality decline on the age structure of the population and then to study the consequent change in the size of the labour force. This could be done with the help of tables 3-5, referred to in paragraph 30. Another way would be to concentrate attention on the change in the number of withdrawals from the labour force caused by a change in mortality. A decline in mortality implies that relatively fewer workers would withdraw from the labour force on that account, thus generating a comparatively lower replacement need. Apart from a quantitative level of impact on the size of the labour force, a change in the age composition of workers brought about by mortality decline and other factors has implications also on the level of productivity. Two counteracting influences could operate in this case, viz. (i) productivity could rise because of a larger proportion of experienced workers, and (ii) productivity could decline because older workers are often more rigid, reluctant to accept change and resistant to new technology and methods of work. The net change in productivity level due to a decline in mortality rate could thus vary under different situations. Still another way of assessing the impact of mortality would be to calculate (i) gross years of active life and (ii) net years of active life, the difference between the two representing the loss in the duration of active life due to mortality. [21]

34. Migration is often thought of as a means to bring about an adjustment in manpower supply and demand in a country or an area. However, if a careful watch is not kept on the magnitude and pattern of migration, it can also lead to imbalances in the geographical distribution of population or labour force. In general, one might say that migration arising from a joint impact of 'push' and 'pull' factors, operating in mutual synchronization, tends to meet the needs of both the receiving and the donor areas. On the other hand, migration resulting from a single factor, either that of a 'push' or a 'pull', is likely to cause an imbalance between manpower supply and demand either at the receiving end or at the despatching end. International migration or brain-drain of personnel who are in short supply in the donor countries is thus viewed as a cause for alarm in several of the Asian countries. Internally, Asian countries are experiencing an increasing volume of rural-urban migration, more because of widespread underemployment in rural areas than in response to a felt need of the urban areas. Recent advances in education have tended to re-inforce this pattern of movement, as a result of which underemployment of rural areas is shifted to urban areas in the form of unemployment. The main impact of such migration on labour force is qualitative rather than quantitative. The migrant usually wants a job as an employee in the city, although in the village he might have been satisfied with the status of a self-employed worker or an unpaid family worker. The educated migrant also generally looks for a white collar job on a remuneration level higher than what the village might have offered. Wherever the modern sector of the economy does not expand fast enough to be able to absorb such migrants (along with the natural increase in the urban labour force), a serious situation threatening the very existence of a healthy and stable society might develop. One way of discouraging such a pattern of migration would be to develop agro-industrial and service activities in villages or nearby towns.

Need for Interdisciplinary Studies

35. An attempt has been made in this paper to study various aspects of the interrelationship between population and manpower phenomena in the context of socio-economic development of the ECAFE region. Such studies need to be conducted in each country of the region so as to obtain a clearer idea of the ways in which the developmental process can be expedited in spite of all the obstacles and difficulties. A basic change in the aims of planning itself has been suggested for the Second Development Decade. For example, the Committee for Development Planning recommended in May 1969 that "In view of the sharp increase in labour force as the result of the maintenance of a birth rate in the face of a declining death rate in the preceding decades, the creation of sufficient employment opportunities to accommodate the increase in the labour force and to reduce the extent of unemployment and underemployment, has to be an important objective of the next Decade." [22]

36. The Employment Policy Recommendation of the ILO, referred to in paragraph 11, suggested studies of economic, social and demographic factors affecting population growth in order to adopt economic and social policies that would bring about a better balance between the growth of employment opportunities and the growth of the labour force. More detailed suggestions included the following:-

a) continuing studies of the size and distribution of the labour force and the nature and extent of unemployment and underemployment and trends therein, including, where possible, analyses of

21 Methods of Analysing Census Data on Economic Activities of the Population, op. cit.

22 Committee for Development Planning, *Report on the Fourth and Fifth Sessions* (United Nations document E/4682, New York, 1969), p. 8.

(i) the distribution of the labour force by age, sex, occupational group, qualifications, regions and economic sectors; probable future trends in each of these; and the effects of demographic factors, particularly in developing countries with rapid population growth, and of technological change on such trends;

(ii) the volume of productive employment currently available and likely to be available at different dates in the future in different economic sectors, regions and ocupational groups, account being taken of projected changes in demand and productivity;

(b) vigorous efforts, particularly through censuses and sample surveys, to improve the statistical data needed for such studies;

(c) short-term forecasts of employment, underemployment and unemployment sufficiently early and in sufficient detail to provide a basis for prompt action to prevent or remedy either unemployment or shortages of labour; and

(d) studies of the methods and results of employment policies in other countries.[23]

37. Studies also need to be made on the concepts and definitions that might be appropriate in the Asian situation to identify the economically active population and its important components. The Dantwala committee, referred to in paragraph 26, examined the issue in the Indian context and made a number of recommendations, which might be of interest to research workers in other countries also. Two of the committee's recommendations that seem to be particularly relevant to our present discussion are:

"In our complex economy, the character of the labour force, employment and unemployment, is too heterogeneous to justify aggregation into single-dimensional magnitudes. We, therefore, recommend separate estimation of different segments of the labour force, taking into account such important characteristics as region (State), sex, age, rural-urban residence, status or class of worker and educational attainment."

"Special studies should be made continuously of the conditions of the employee class, suitably defined, in various parts of the country and in different sectors of the economy. Simultaneously, information should be collected on wage rates for different categories of labour in selected centres."[24]

38. An interesting question that needs to be examined is how far macro-level studies or micro-level studies could probe into different aspects of interrelationships between population, manpower and socio-economic development. No general statement can possibly be made about the relative merits and demerits of global or component studies. Different agencies have to assess the role that they would like to assign to the two types of studies. Micro-level studies do, however, seem to have an advantage in the Asian situation insofar as the conceptual and practical issues connected therewith might often be more manageable. However, irrespective of whether a study is conducted at the macro-level or the micro-level, it is necessary to adopt an interdisciplinary approach, to provide a corrective to a limited view that is possible within any single discipline. From this consideration, it is an encouraging development that demographers, manpower analysis and socio-economic planners are attempting to examine the interrelationships between their respective subjects. Primary data for such studies have to be collected partly through censuses and partly by conducting sample surveys in depth. It would also lead to a clearer appreciation of the various linkages if a systems approach is adopted for a critical analysis and interpretation of the data. A sound framework of concepts, methods, tools and data would thus provide a realistic basis for adjusting population and manpower policies to the needs of a dynamic situation during the Second Development Decade.

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23 ILO, Employment Policy Recommendation, 1964 (para1 (i)) of Annex, as reproduced in *Conventions and Recommendations* (1919-1966), *op. cit.*, p. 1108.

24 Government of India, *Report of the Committee of Experts on Unemployment Estimates*, *op. cit.*, p. 31.

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